Question Bank Series-1

SUPERVISOR CERTIFICATE OF COMPETENCY (SCC)

&

CHARTERED ELECTRICAL SAFETY ENGINEER (CESE)

EXAMINATION

ELECTRICAL LICENSING BOARD, ODISHA (ELBO)
EIC (ELECTRICITY)-CUM-PCEI, ODISHA

ଓଡ଼ିଶା ସରକାର

ELECTRICAL LICENSING BOARD ODISHA

(DEPARTMENT OF ENERGY, GOVERNMENT OF ODISHA)

MULTIPLE CHOICE QUESTIONS (MCQ)

ELECTRICAL SUPERVISOR CERTIFICATE OF COMPETENCY EXAMINATION
SCC (MV) AND SCC (HT)

&

CHARTERED ELECTRICAL SAFETY ENGINEER (CESE) EXAMINATION

(440V & 11 KV)

(Sample Questions)

PART-I

Questions are based on syllabus prescribed for Supervisor (MV) as well as CESE (upto 440V) Examination.

PART-II

Questions are based on syllabus prescribed for Supervisor (HT) as well as CESE (upto 11 KV) Examination.

Note-SCC (HT)/ CESE (upto 11KV) aspirants need to cover SCC (MV) / CESE (upto 440V) syllabus in addition to SCC(HT) / CESE (upto 11KV)syllabus.

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PART-I(A)

MULTIPLE CHOICE QUESTIONS (MCQs)
FOR

ELECTRICAL
SUPERVISOR CERTIFICATE OF COMPETENCY (SCC)-MV
AND
CHARTERED ELECTRICAL SAFETY ENGINEER (CESE)-UPTO 440V

1 How the conduit pipes are specified?
   a. Length in meter
   b. Wall thickness in mm
   c. Inner diameter in mm
   d. Outer diameter in mm

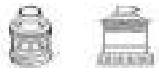
2 What is the fusing factor for rewire-able fuse?
   a. 1.1
   b. 1.4
   c. 2.1
   d. 2.5

3 What is the purpose of underwriter's knot for pendent holder connection?
   a. Avoid loose connections
   b. Increase mechanical strength
   c. Prevent excessive cap cover pressure
   d. Reduce the strain from the terminals of accessories

4 What is the type of fuse?

   a. Knife edge cartridge fuse
   b. High rupturing capacity fuse
   c. Ferrule contact cartridge fuse
   d. Diazed screw type cartridge fuse

5 What is the name of electrical accessory?



   a. Bracket holder
   b. Edison screw type holder
   c. Angle swivel lamp holder
   d. Goliath Edison screw lamp holder

6 What is the name of symbol used in wiring circuit?

   a. Link
   b. Fuse
   c. Pull switch
   d. Plug and socket

7 Which type of load is protected by the L-series MCB?
   a. Motors
   b. Geyser
   c. Hand tools
   d. Air conditioner

8 Which type of switch is used in the circuit?
   a. One-way switch
   b. Two-way switch
   c. Intermediate switch
   d. Multi-position switch

9 What is the effect of low current rated cable used to connect higher current load?
   a. Voltage drop increases
   b. Load current increases
   c. Voltage drop decreases
   d. Cable damage due to heat

10 What is the name of the conduit accessory?

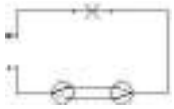
   a. Solid bend
   b. Solid elbow
   c. Inspection Bend
   d. Inspection elbow

11 How many two way switches with intermediate switch are used to control one lamp from three different places?
   a. 1
   b. 2

c. 3
d. 4

12 What is the advantage of concealed wiring?
a. Easy to maintain
b. Less voltage drop
c. High insulation resistance
d. Protection against moisture

13 What is the name of the diagram?



a. Installation plan
b. Layout diagram
c. Wiring diagram
d. Circuit diagram

14 What is the fusing factor for high rupturing capacity fuses (HRC)?
a. 1.0
b. 1.1
c. 1.4
d. 1.7

15 Which type of relay can be operated at both A.C and D.C?
a. Ferred relay
b. Thermal relay
c. Impulse relay
d. Dry reed relay

16 What is the name of the accessory used in electrical appliances?

a. 2 Pin plug
b. Three pin plug
c. Iron connector with direct entry
d. Flat connector with side entry

17 What is the name of the accessory symbol?

a. Bell push switch
b. Two way switch
c. One way switch two poles
d. Multi position switch single pole

18 What is the purpose of the flexible cords in domestic wiring?
a. Concealed wiring
b. Permanent connection
c. Run cable through holes in ceiling
d. Connection transportable appliances

19 Which type of circuit breaker is used above 100 A current rating?
a. Miniature Circuit Breaker (MCB)
b. Earth Leakage Circuit Breaker (ELCB)
c. Moulded Case Circuit Breaker (MCCB)
d. Residual Current Circuit Breaker (RCCB)

20 What is the purpose of tin coating on copper fuse wire?
a. Withstand high temperature
b. Increase the fusing factor
c. Prevent oxidation of copper wire
d. Increase the mechanical strength

21 What is the name of the four insulated conductors group?
a. Pair
b. Core
c. Quad
d. Layer

22 How many two way switches are required in godown wiring circuit to control four lamps
a. 2
b. 3
c. 4
d. 5

23 Why tree system of wiring most suitable for multi-storied building?

a. Easy load balancing
b. Constant voltage distribution
c. Offers minimum voltage drop
d. Easy in fault finding with many fuses

24 Which is used as a filler material for fixing screw hole on ceiling?
a. Paper
b. Nylon
c. Cement
d. Poly vinyl chloride

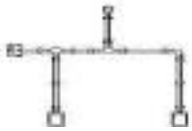
25 What is the symbol indicates?

a. Table fan
b. Ceiling fan
c. Bracket fan
d. Exhaust fan

26 What is the name of the relay?

a. Impulse relay
b. Dry reed relay
c. Electromagnetic relay
d. Mercury wetted contact relay

27 What is the name of the diagram?



a. Layout plan
b. Wiring diagram
c. Installation plan
d. Schematic diagram

28 Where the Iron Clad Double Pole (ICDP) main switch is used?
a. Large industrial installations
b. Control main or branch circuits
c. Single phase domestic installations
d. Three phase power circuit installations

29 Which electrical accessory belongs to general classification of accessories?
a. Fuse
b. Ceiling roses
c. Intermediate switch
d. Pendent lamp holder

30 Which is the application of DC series MCB?
a. AC motor
b. DC motor
c. Locomotives
d. Air conditioners

31 What is the term for the time taken by a fuse to interrupt the circuit in fault?
a. Time factor
b. Fusing factor
c. Cut-off factor
d. Fusing current

32 Which place the Tree system of wiring is most suitable?
a. Godown wiring
b. Industrial wiring
c. Domestic wiring
d. Multi storied building

33 What is the maximum PVC conduit size to make safe cold bending?
a. 12 mm
b. 19 mm
c. 25 mm
d. 50 mm

34 Why separate wiring is recommended for home theatre wiring and power wiring?
a. Avoid electrical fire
b. Reduce power loss
c. Avoid electrical interference
d. Maintain voltage level constant

35 What is the name of the lighting circuit?

a. Tunnel lighting wiring

b. Corridor lighting wiring
c. Godown lighting wiring
d. Staircase lighting wiring

36 What is the tool used to bend conduits?
a. Hickey
b. Coupler
c. Pipe vice
d. Bench vice

37 What is the expansion of MCB?
a. Minute Control Breaker
b. Miniature Circuit Breaker
c. Minimum Current Breaker
d. Maximum Current Breaker

38 What is the purpose of ELCB? ELCB
a. Detects the fault in circuit
b. Monitors the residual current
c. Protects the equipment from over load
d. Protects from short circuit fault

39 What is the purpose of the fuse cut out provided at the incoming power supply?
a. To ensure the line is not over loaded
b. To maintain the stabilized supply voltage
c. To protect the circuit from the leakage current
d. To protect the human beings from electric shock

40 What is the use of die stock set?
a. Cut external threads on square pipe
b. Cut internal threads on cylindrical pipe
c. Cut external threads on cylindrical pipe
d. Cut internal threads on rectangular pipe

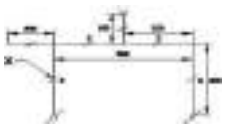
41 Which classification of accessory the ceiling rose is classified?
a. Outlet accessories
b. Safety accessories
c. Holding accessories
d. General accessories

42 What is the purpose of the circuit diagram in wiring installation?
a. To show the physical position of accessories
b. To estimate the various accessories in the circuit
c. To inform the reader quickly what for the circuit is designed
d. To show the schematic connection of the circuit for a specific task

43 Which electrical equipment is provided with L series MCB?
a. General lighting
b. Motors
c. Air conditioner
d. Halogen lamp

44 Why the looping-back (loop in) method is preferred in domestic wiring installation?
a. Easy to identify the faults
b. No separate joints are used
c. More number of tapping's can be taken
d. More number of sub-circuits can be made

45 What does the symbol marked 'X' indicates?



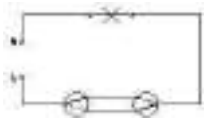
a. Number of wires run on the limb
b. Number of switches to be connected
c. Number of batten (or) pipe to be fixed
d. Number of clamps (or) clips to be fixed

46 What is the name of wiring method?

a. Joint box method

b. Looping back method
c. Loop in method using 3 plate ceiling rose 3
d. Loop in method using 2 plate ceiling rose 2

47 What is the name of the diagram?



a. Staircase wiring
b. Godown wiring
c. Hostel wiring
d. Tunnel wiring

48 What is the type of relay?
a. Impulse relay
b. Dry reed relay
c. Latching relay
d. Electromagnetic relay

49 Calculate the earth fault loop impedance, if the ELCB tripping current is 30 mA?
a. 166Ω
b. 1666Ω
c. 16.66Ω
d. 16666Ω

50 What is the type of wiring?

a. CTS wiring
b. Cleat wiring
c. PVC conduit wiring
d. PVC casing and capping wiring

51 What is length of thread on rigid conduits as per BIS?
a. 9mm - 20mm
b. 11mm - 27mm
c. 13mm - 25mm
d. 15mm - 30mm

52 Which type of conduit used for gas tight explosive installation?
a. Flexible conduits
b. Rigid steel conduits
c. Rigid non-metallic conduits
d. Flexible non-metallic conduits

53 What is the function of circuit breaker?
a. Making contact at normal condition
b. Making contact at abnormal condition
c. Breaking automatically at abnormal condition
d. Physical breaking contact at abnormal condition

54 What is the function of bimetallic strip in MCB?
a. Over load protection
b. Short circuit protection
c. Over voltage protection
d. Earth leakage protection

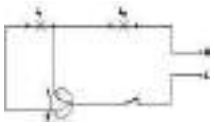
55 What protection offered by residual current circuit breaker?
a. Protection from shock
b. Protection from over load
c. Protection from short circuit
d. Protection from leakage current

56 Which wiring is suitable for temporary installations?
a. Cleat wiring
b. Concealed wiring
c. PVC conduit wiring
d. Metal conduit wiring

57 Where the phase conductor is looped in looping system of wiring?
a. Switch box
b. Junction box
c. Distribution box
d. Socket connection

58 How many link clips are packed in cardboard boxes as per BIS rules?
a. 50 clips
b. 75 clips
c. 100 clips
d. 150 clips

59 What is the application of the wiring circuit?



a. Two lamps dim operation only
b. Two lamps controlled by one switch
c. Two lamps controlled by two switches
d. One lamp bright and two lamp dim operation

60 What is the reason for home theatre wiring not to run along with power wiring?
a. Avoid leakage current in home theatre wiring
b. Control temperature in home theatre wiring
c. Avoid electrical interference in audio, video system
d. Reduce the power consumption in power supplies

61 What will happen to the value of earth resistance if length of the earth pipe is increased?
a. Remain same
b. Increases
c. Decreases
d. Infinity

62 Which types of accessories are used to operate a portable appliance?
a. Safety accessories
b. Holding accessories
c. Outlet accessories
d. Controlling accessories

63 Which insulation is necessary for proper function and basic protection?
a. Double insulation
b. Functional insulation
c. Reinforced insulation
d. Supplementary insulation

64 Which type of accessories of fuse is comes under?
a. Controlling accessories
b. Holding accessories
c. Safety accessories
d. Outlet accessories

65 What is the expansion of ECC?
a. Earth Conductor Continuity
b. Earth Continuity Conductor
c. Earth Carrying Conductor
d. Earth Continuity Cable

66 Which type MCBs suitable for halogen lamps?
a. L series MCBs
b. G series MCBs
c. DC series MCBs
d. L and G series MCBs

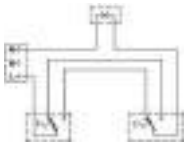
67 Which type of lamp holder is used for the lamps above 300 watts?
a. Edison screw holder
b. Goliath screw holder
c. Angle holder
d. Bracket holder

68 What is the expansion of SWG?
a. Specific Wire Gauge
b. Standard Wire Grade
c. Supplied Wire Group
d. Standard Wire Guard

69 What is the name of BIS symbol?

a. Lamp
b. Two way switch
c. Intermediate switch
d. Multi - position switch

70 What is the type of diagram?



a. Wiring diagram
b. Circuit diagram
c. Installation plan
d. Layout diagram

71 Which type of lamp holder from the following is fitted directly on the wooden board?
a. Pendent holder
b. Angle holder
c. Bracket holder
d. Batten holder

72 The type of wiring that is highly suitable for a temporary shed is
a. Cleat wiring
b. Wooden capping and casing wiring
c. Lead sheathed wiring
d. Conduit wiring

73 For painful shock, what is the range of electric shock current at 50Hz?
a. 3-5 mA
b. 5-10 mA
c. 0-3 mA
d. 0-1 mA

74 The alluminium conductor of size _____is used for a sub-circuit in domestic wiring.
a. (1/1.8)mm
b. (1/2.24)mm
c. (1/1.4)mm
d. (1/1.2)mm

75 For cleat wiring and 250 volts supply, the cables will be placed _____apart centre to centre for single-core cables.
a. 4.5 cm
b. 2.5 cm
c. 3 cm
d. 4 cm

76 The rated voltage of a 3-phase power system is given as_____.
a. peak phase voltage
b. r.m.s line to line voltage
c. peak line to line voltage
d. r.m.s phase voltage

77 As per IE rules the permissible variation of voltage at the consumer end is_____.
a. ± 12 %
b. ± 2 %
c. ± 6 %
d. ± 10 %

78 Which insulation is most widely used for covering wires/cables used in internal wiring?
a. Paper
b. Wood
c. Glass
d. PVC

79 Supplier's fuse, which is provided in domestic wiring system is_____.
a. After the energy meter
b. Before the energy meter
c. Before the distribution board
d. After the main switch

80 In a 3-pin plug_____.
a. All the three pins are of the same size
b. Two pins are of the same size but third one is thicker
c. Two pins are of the same size but third one is thicker and longer
d. All the three pins are of different sizes

81 In which type of wiring vulcanized Indian rubber (VIR) and polyvinyl chloride (PVC) insulated wires are used as conductors?
a. CTS wiring
b. Cleat wiring
c. Lead sheathed wiring
d. Conduit wiring

82 One among the following is the topmost conductors in high voltage transmission lines, identify it.
a. R-phase conductor
b. Y-phase conductor
c. B-phase conductor
d. Earth conductor

83 In the case of electric fire, use_____.
a. CO_2
b. N_2S
c. SO_2
d. Cl_2

84 As per the recommendation of ISI the maximum number of points of light, fans, and socked that can be connected in one sub-circuit is_____.
a. 8
b. 10
c. 15
d. 20

85 The loop earth wire used shall not be of a size less than_____.
a. 8 SWG
b. 10 SWG
c. 20 SWG
d. 14 SWG (2.9 mm2) or half of the size of the sub-circuit wire

86 Which of the following wiring is preferred for workshop lighting?
a. Casing-capping wiring
b. Batten wiring
c. Concealed conduit wiring
d. Surface conduit wiring

87 Highly skilled labour is required in_____.
a. TRS wiring
b. Conduit wiring
c. Casing-capping wiring
d. Both conduit and casing-capping wiring

88 As per the recommendation of ISI the maximum load that can be connected in one sub-circuit is_____.
a. 800 Watts
b. 1000 Watts
c. 1600 Watts
d. 500 Watts

89 What is the maximum load that is permitted in a power circuit?
a. 5000 Watts
b. 3000 Watts
c. 2000 Watts
d. 10000 Watts

90 How many outlets are permitted in a power circuit?
a. 10 points
b. 5 points
c. 2 points
d. 1 point

91 What is the maximum distance between the two successive cleats?
a. 0.25 m
b. 0.6 m
c. 0.9 m
d. 1.25 m

92 Which among these is a type of batten wiring? 1. Using metal-sheathed wiring 2. Using TRS or PVC wires
a. Only 1
b. Only 2
c. Both 1 and 2
d. None of these

93 Which among these is a type of batten wiring?
a. Metal sheathed wiring
b. TRS or PVC wires
c. Both metal-sheathed wiring and TRS or PVC wires
d. None of these

94 Which among these is a type of internal wiring? i. Cleat wiring ii. Conduit wiring iii. CTS wiring
a. only i
b. only ii
c. both ii and iii
d. i, ii and iii

95 _____should be provided as the working space of the main switchboard according to Indian electricity rule 51
a. 0.914 m
b. 0.523 m
c. 0.638 m
d. 0.814 m

96 Which set of rules are to be verified on the completion of wiring on any new installation?
a. Indian electricity rules,1950
b. Indian electricity rules, 1956
c. Indian electricity rules,1960
d. None of these

97 What is the factor of safety used for current ratings in a power installation?
a. 1
b. 1.5
c. 1.75
d. 2

98 What is the maximum length of the flexible conduit in the motor installation?
a. Less than 1.25 m
b. Less than 2.25 m
c. Less than 3.5 m
d. Can exceed not more than 5 m

99 What is the maximum load that can be connected in a circuit connecting only lighting points?
a. 500 Watts
b. 750 Watts
c. 800 Watts
d. 1000 Watts

100 Which material is used for wiring continuous bus bar? i. Aluminium ii. Copper
a. only i
b. only ii
c. both i & ii
d. none of these

101 Which statement is true, with respect to the motor installation?
a. Wood work is used for mounting switchgears
b. All equipment used in power wiring shall be of iron clad
c. Looping of conductors is usually made.
d. The length of flexible conduit is more than 3 m.

102 Which among these is a method of wiring? i. Joint box ii. Tee system iii. Loop in system
a. Only i
b. Only ii
c. Only iii
d. i, ii, & iii

103 For what voltage levels are the screwed conduit circuits used?
a. Less than 259V
b. Between 250 V- 600 V
c. Above 600V
d. None of these

104 In an electric line, a switch is connected to which of the following wire?
a. Earth
b. Phase
c. Neutral
d. Not connected

105 A lighting sub-circuit has 100 W lamps. If the rated current of the fused in this circuit is 5 A, the maximum number of light points on this circuit without violating regulations and safety should be_____.
a. 8
b. 9
c. 14
d. 16

106 What is an electrical schedule? i. A list or a plan of a building providing information of number of points in each room. ii. The list of all the electrical components required for a particular room. iii. The list of all the electrical components along with their prices.
a. only i
b. only ii
c. both ii and iii
d. none of these

107 In batten wiring the cables are carried on seasoned teak wood perfectly straight and well-varnished teak wood batten of a thickness not less than?
a. 1 cm
b. 3 cm
c. 2 cm
d. 4 cm

108 What is the minimum size of Copper earth continuity conductor used in single phase domestic wiring as per BIS?
a. 3 Sq.mm
b. 3.5 Sq.mm
c. 2.5 Sq.mm
d. 1.5 Sq.mm

109 Which method is used to reduce earth resistance value in an existing earth?
a. Increasing the length of electrode
b. Keeping wet condition in earth pits always
c. Adding more sand and charcoal in earth pits
d. Increasing the diameter of earth electrode

110 Why A.C is required to measure the earth resistance by using earth resistance tester? It_____.
a. Regulate the current
b. Increase the voltage drop
c. Decrease the voltage drop
d. Avoid electrolytic e.m.f interference

111 What is the formula to find voltage drop of an A.C single phase wiring circuit?
a. Voltage drop = IR volt
b. Voltage drop = I^2R volt
c. Voltage drop = I/R volt
d. Voltage drop=IR/2 volt

112 What is the maximum permissible load for a power sub circuit as per I.E rules?
a. 800 Watt
b. 1500 Watt
c. 2000 Watt
d. 3000 Watt

113 Which location the service connection supply leads to be connected at consumer main board?
a. IC cut out
b. Main switch
c. Energy meter
d. Distribution board

114 What is the type of test in domestic wiring installation?
a. Polarity test
b. Continuity (or) open circuit test
c. Insulation resistance test between conductors
d. Insulation resistance test between conductors and earth

115 What is the permissible leakage current in domestic wiring installation?
a. 1/5 x Full load current
b. 1/50 x Full load current
c. 1/500 x Full load current
d. 1/5000 x Full load current

116 Which formula is used to calculate the diversity factor?
a. Diversity Factor = Installed load/Maximum load
b. Diversity Factor = Installed load/ Minimum actual load
c. Diversity Factor = Minimum actual load / Installed load
d. Diversity Factor = Maximum Load/Installed Load

117 Which instrument is used to test new domestic wiring installation?
a. Multi-meter
b. Megger
c. Shunt type ohmmeter
d. Series type ohmmeter

118 What is the type of test in the wiring installation?
a. Polarity test
b. Open circuit test
c. Insulation resistance test between conductors
d. Insulation resistance test between conductors and earth

119 Where system earthing is done?
a. Generating station
b. Electroplating installation
c. Small industrial installation
d. Domestic wiring installation

120 What is the test to be carried out by using Megger?
a. Polarity test
b. Insulation resistance test
c. Earth electrode resistance test
d. Earth conductor continuity test

121 What is the reason of lamp glowing dim and motor running slow in a domestic wiring circuit?
a. Open circuit in the neutral line
b. Short circuit between conductors
c. High value series resistance fault
d. Open circuit in the earth conductor

122 Which wiring installation the System earthing is to be done?
a. Substations
b. Godown wiring
c. Domestic wiring
d. Commercial wiring

123 Which method of earth resistance measurement is illustrated?

a. Fall of current
b. Fall of potential
c. Current dividing
d. Potential dividing

124 How to control harmonic distortions in neutral connections as per IE rule?
a. Earthing through impedance
b. Providing by plate earthing
c. Increasing conductor size
d. Providing parallel earthing

125 What is the function of current reverser in earth resistance tester?
a. Converts A.C into D.C
b. Reverses the polarity of D.C
c. Changes D.C supply into A.C supply
d. Reverses the direction of rotation of the generator

126 What is the advantage of stranded conductor over solid conductor?
a. Cost is less
b. More flexible
c. Less voltage drop
d. More insulation resistance

127 How the earth resistance can be reduced?
a. Providing double earthing
b. Reducing the pit depth for earthing
c. Increasing the length of the electrodes
d. Decreasing the length of the electrodes

128 What is the reason for supplying A.C to the electrodes for measuring earth resistance?
a. Provide electrostatic shield
b. Protect the coils in the meter
c. Reduce the value of current in the meter
d. Avoid the effect of electrolytic e.m.f. interference

129 Why the pointer is not stable at zero on the scale as the Megger is not in use?
a. It is not having controlling Torque
b. Provided with air friction damping
c. The deflecting torque is directly proportional to the current
d. The deflecting torque is directly proportional to the square of the current

130 Which is proportional for the deflection of ohmmeter needle in earth resistance tester?
a. Current in current coil
b. Current in potential coil
c. Speed of the handle rotation
d. Ratio of the current in two coils

131 Which principle the earth resistance tester works?
a. Self induction
b. Mutual induction
c. Fall of potential method
d. Fleming's left hand rule

132 Why system earthing is different in utilization than equipment earthing?
a. It protects human only

b. It protects from all circuit faults
c. It is associated with current carrying conductors
d. It is connected to the non current carrying metal work

133 What is the effect if a person receives a shock current of 20 mA?
a. No sensation
b. Painful shock
c. Heart convulsions
d. Become unconscious

134 Which electrical equipment L series type MCB's are used?
a. Geysers
b. Locomotives
c. Halogen lamps
d. Air conditioners

135 What is the Megger reading in a dead short wiring installation?
a. 0 M Ω
b. 1 M Ω
c. 500 M Ω
d. Infinity

136 What is the advantage of crimping?
a. Gives neat appearance
b. Reduce load current
c. Avoid loose connections
d. Easy to replace

137 For proper earthing, what should be the maximum value of earth resistance while carrying out the testing of earth continuity path?
a. 1 Ω
b. 2 Ω
c. 5 Ω
d. 10 Ω

138 From the point of view of safety, the resistance of the earthing electrode should be_____.
a. Low
b. High
c. Medium
d. The value of resistance of earth does not affect the safety

139 Materials used in plate earthing are_____.
a. Wood coal
b. Salt, earthing plate
c. (a) and (b) both
d. None of the above

140 Minimum distance of underground cable from the foundation of a building should be_____.
a. 100 cm
b. 50 cm
c. 10 cm
d. 5 cm

141 In house wiring, black and green wires indicate,_____.
a. Earth and neutral respectively
b. Phase and neutral respectively
c. Phase and earth respectively
d. Neutral and earth respectively

142 Earth resistance comprises of_____. 1. Resistance of soil away from electrode. 2. Contact resistance between electrode and soil.
3. Resistance of metal electrode
a. 1 only
b. 1 and 2 only
c. 1 and 3 only
d. 1 ,2 and 3 together

143 Humans are more vulnerable to electric shock current at?
a. 50 Hz
b. 48 Hz
c. 40 Hz
d. 45 Hz

144 The earth's potential is taken as_____.
a. Infinite
b. Supply voltage
c. 1 volt
d. Zero

145 For reducing tower footing resistance, it is better to use_____.
a. Chemical and ground rod only
b. Chemical and counterpoise only

c. Ground rod and counterpoise only
d. None of these

146 The earthing electrodes should be placed within what distance in meters from the building whose installation system is being earthed?
a. 4
b. 2.5
c. 1.5
d. 0.5

147 The purpose of earthing electric appliances is_____.
a. To provide safety against shock
b. To ensure that the appliance saves current
c. To ensure that the appliance gets full voltage
d. None of these

148 Inside the earth pit, the earthing electrode should be placed_____.
a. Vertical
b. Horizontal
c. Inclined at 45°
d. Inclined at any angle other than 45°

149 The acceptable value of grounding resistance to a domestic application is_____.
a. 0.1 Ω
b. 1 Ω
c. 10 Ω
d. 100 Ω

150 For the measurement of the earth resistance of a given earth electrode,_____.
a. collecting electrode should be very near to the electrode under test
b. collecting electrode should touch the electrode under test
c. collecting electrode should be far way the electrode under test
d. none of these

151 The addition of ground rods in the earthing grid_____.
a. Decrease the earth resistance
b. Has no effect on earth resistance
c. Slightly decrease the earth resistance
d. Slightly increase the earth resistance

152 The purpose of earthing electric appliances is_____.
a. To provide safety against shock
b. To ensure that the appliances work properly
c. To ensure that the appliances get full voltage
d. None of the above

153 Normally the human body resistance in the totally wet and the dry condition is _____ respectively.
a. 1 kΩ and 1 MΩ
b. 0.1 Ω and 10 kΩ
c. 100 Ω and1 kΩ
d. 100 Ω and 10 kΩ

154 Mixture preferred for filling around the earth electrode for effective earthing is_____.
a. Paper-salt mixture
b. Saw dust mixture
c. Coal-salt mixture
d. Lime-sand mixture

155 The effect of electric shock on human body depends on:_____.
i. Current, ii. Voltage, iii. duration of contact
a. only i
b. only ii
c. only iii
d. all i, ii and iii

156 Which type of neutral grounding method has high transient voltages appearing under fault conditions?
a. Solid grounding
b. Resistance grounding
c. Reactance grounding
d. Plate grounding

157 In practice, earth is chosen as a place of zero electric potential because it_____.
a. is non-conducting
b. is easily available reference

c. keeps losing and gaining electric charge everyday
d. has almost constant potential

158 Third pin in a 3-pin plug is provided so as to_____.
a. Provide an earth connection
b. Provide a 3-phase supply when required
c. Provide a spare phase when required
d. Prevent the plug being reversed in the socket

159 Resistivity of earth increases sharply when moisture falls below_____.
a. 0.6
b. 0.4
c. 0.2
d. 0.1

160 What is the diameter of the GI pipe through which the earth wire needs to be taken to?
a. 13 mm diameter
b. 15 mm diameter
c. 19 mm diameter
d. 6 mm diameter

161 What should be the value of earthing resistance for large power stations?
a. 1 Ω
b. 0.5 Ω
c. 2 Ω
d. 5 Ω

162 What type of earthing is used by transmission lines?
a. Plate earthing
b. Rod earthing
c. Strip earthing
d. Both plate and strip earthing

163 Which type of earthing is also called as 'fire earthing'? i. Plate earthing, ii. Rod earthing, iii. Strip earthing
a. only i
b. only ii
c. only iii
d. i, ii and iii

164 What is the dimension of the copper strips used for the strip earthing?
a. 25 mm x 4 mm
b. 25 mm x 3 mm
c. 30 mm x 4 mm
d. 30 mm x 3 mm

165 In the earthed neutral system, the magnitude of transient voltage is_____.
a. Zero
b. Very small
c. Medium
d. Very high

166 Risk of broken neutral is maximum in_____earthing system.
a. TT
b. IT
c. TN-S
d. TN-C

167 Earth electrode used in plate earthing is a_____.
a. Plate
b. Pipe
c. Rod
d. Grid

168 According to the IS code, the colour of the earth wire is usually_____.
a. Red
b. Green
c. Yellow
d. Black

169 Which of the following is used to maintain constant voltage in the feeder circuit?
a. Induction regulator
b. Booster
c. Tap changer
d. Phase advancers

170 The 400 V distribution lines are commonly known as_____.
a. Feeder
b. Service mains
c. Substation
d. Distributors

171 The feeder is designed mainly from the point of view of_____.
a. Its current carrying capacity
b. Voltage drop in it
c. Operating voltage
d. Operating frequency

172 Factor of safety is the ratio of_____.
a. Permissible stress/Ultimate stress
b. Ultimate stress/Permissible stress
c. Permissible strain/Ultimate strain
d. Ultimate strain/permissible strain

173 A DC two-wire distributor system supplies a constant load. What is the saving in copper, if the voltage is doubled with power transmitted remaining the same?
a. 0.25
b. 0.5
c. 0.75
d. 25% increased

174 The percentage ratio of copper for 3-wire DC system to 2-wire DC distribution system for same cross-section of neutral wire as outer wire is:
a. 0.405
b. 0.406
c. 0.3125
d. 0.375

175 In a radial distribution system, the distributor is_____.
a. From both end
b. From the centre
c. From one end
d. At different point

176 A radial power system is represented by_____.
a. Closed paths
b. Closed and open paths
c. Only open paths
d. None of the other options

177 The main criterion for the design of the distributor is_____.
a. The voltage drop
b. Corona loss
c. Temperature rise
d. Radio interference

178 Which of the following systems of distribution offers the best economy at high voltages?
a. Direct current system
b. AC single-phase system
c. AC 3 phase 3 wire system
d. AC 3 phase 4 wire system

179 In a transmission system, feeder feeds power to_____.
a. Distributors
b. Distributors and Generating Stations
c. Generating Station
d. Service Mains

180 Which of the following is connected in series with the feeder?
a. Conductors
b. Distribution Transformer
c. Booster
d. Earth Connection

181 Radial system is used when:_____.
a. energy is to be produced on high potential
b. energy is to be produced on low potential
c. substation is far away from load station
d. number of consumers are more

182 When a feeder ring distributes energy from two or more than two production plants, then this distribution system is known as:
a. Radial system
b. Ring main system
c. Interconnected system
d. Underground system

183 For the stable operation of an interconnected system, which passive element can be used as interconnecting element?
a. Resistor
b. Relay
c. Capacitor
d. Reactor

184 A line which connects a distributor to substation is called:
a. Distributor
b. Feeder
c. Line
d. Service main

185 In an AC transmission line difference in phase of voltage at two ends of the line is due to_____.
a. System voltage
b. Insulators
c. Resistance of line
d. Reactance of line

186 A single Phase-3 Wire AC system is made up of_____.
a. 3 Conductor wires
b. 1 Conductor wires and 2 Neutral
c. 1 Conductor wire and 1 Neutral
d. 2 Conductor wire and 1 Neutral

187 Which among these is a part of the distribution system?
1. Feeders, 2. Distributors, 3. Service mains
a. Only 1
b. Only 2
c. Only 3
d. 1, 2 and 3

188 The criterion for selection of the size of conductor for a feeder is_____.
a. Voltage drop
b. Corona loss
c. Temperature rise
d. Radio interference

189 The main criterion for the design of a distributor is_____.
a. voltage drop
b. corona loss
c. temperature rise
d. all options are correct

190 In a transmission system, the feeder supplies power to_____.
a. transformer substations
b. service mains
c. distributors
d. All options are correct

191 The main criterion for the design of a distributor is:
a. Voltage drop
b. Corona loss
c. Temperature rise
d. Radio interference

192 Transmission lines and distribution lines can be discriminated by_____.
a. the size of the conductor
b. the operating voltage
c. The amount of current carried by the liner
d. None of these

193 How much is the cross-sectional area of the neutral wire in a 3 phase 4 wire systems?
a. the same cross-section as the outer wires
b. half the cross-section as the outer wires
c. twice the cross-section as the outer wires
d. 0.75 times the cross-section of the line

194 In a distribution system, major cost is that of_____.
a. Earthing system
b. Distribution transformer
c. Conductors
d. Meters

195 All transmission and distribution systems are_____phase systems.
a. 3
b. 2
c. 1
d. 4

196 Which of the following is most commonly used in secondary distribution?
a. 2-phase 3-wire
b. 1-phase 2-wire
c. 1-phase 3-wire
d. 3-phase 4-wire

197 For secondary distribution, the transformer(s) used is/are_____.

a. Auto Transformer
b. Star-Delta and Delta-Star Transformer both
c. Star-Delta Power Transformer
d. Delta-Star Distribution Transformer

198 Which one of the following is a major consideration in the design of a distributor?
a. Supply voltage
b. Current rating
c. Voltage drop
d. Frequency

199 Which material is used to make heating element?
a. Silver
b. Copper
c. Nichrome
d. Aluminium

200 What is the name of the part of electric iron?

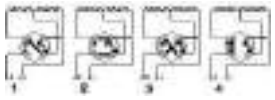
a. Sole plate
b. Pressure plate
c. Mica insulation
d. Asbestos sheet

201 What is the function of stirrer motor in micro wave oven?
a. Draws cooling air inside
b. Spreads the heat uniformly
c. Exhausts the hot air outside
d. Revolves and reflects the electromagnetic energy

202 What is the purpose of U bend marked as X in geyser?
a. Prevents draining of water
b. Avoids the forming of scales
c. Reduces the pressure of outlet pipe
d. Restricts the air locking inside the tank

203 Which type of A.C single phase motor is used in food mixer?
a. Universal motor
b. Repulsion motor
c. Split phase motor
d. Shaded pole motor

204 Which is the position for maximum output of the heater?



a. Position 1 1
b. Position 2 2
c. Position 3 3
d. Position 4 4

205 Which formula is used to calculate the heat generated as per Joules law?
a. Heat generated = IRT / J cal
b. Heat generated = I^2RT / J cal
c. Heat generated = IR^2T / J cal
d. Heat generated = $(IR)^2$ T / J cal

206 Calculate the heat generated in a electric heater of 1000 watt, 240 volt, worked for 5 minutes?
a. 70.5 Kilo calories
b. 71.0 Kilo calories
c. 71.6 Kilo calories
d. 72.1 Kilo calories

207 What is the purpose of protection grooves at various places in a heater base plate?
a. Radiate the heat properly
b. Retain the heating element firmly
c. Place the vessels firmly on heater plate
d. Protect the heating element from damage

208 What is the purpose of sole plate in electric kettle?
a. Acts as a balancing weight
b. Acts as an insulator for element
c. Protect the kettle base from damage
d. Keep the element in close contact with container

209 What is the magnetron tube filament voltage used in microwave oven?
a. 1.5 V C
b. 2.0 V C
c. 3.0 V C
d. 3.2 V C

210 What is the fault in a food mixer if it runs intermittently?
a. Worn out brushes
b. Armature coil open
c. Defective commutator
d. Field winding partially short

211 What is the defect in a single phase pump motor if it runs with slow speed?
a. Defective capacitor
b. Open starting winding
c. Short in starting winding
d. Short in running winding

212 What is the function of neutral path in AC supply system for appliances?
a. Provides current return path
b. Provides voltage level constant
c. Reduces voltage drop in wiring
d. Maintains load current constant

213 What is the function of magnetron tube in a microwave oven?
a. Amplifies the microwave signal
b. Changes the polarity every half cycle
c. Oscillate and produce cooking frequency
d. Converts microwave energy to electrical energy

214 Which type of motor is used in the wet grinder?
a. Universal motor
b. Repulsion motor
c. Capacitor start induction run motor
d. Capacitor start capacitor run motor

215 What is the name of the circuit?

a. Electronic fan regulator
b. Electronic voltage multiplier
c. Electronic voltage stabilizer
d. Electronic triggering circuit of SCR

216 A selection of fuse is based on
a. Steady load
b. Fluctuating load
c. Both (a) & (b)
d. None of these

217 The rating of fuse wire is always expressed in
a. Volts
b. Amperes
c. Ampere-volt
d. Ampere-hours

218 Consider the following statements and select the current option. Statement A: When current more than the fixed value flows in the circuit, fuse wire melts. Statement B: Fuse wire is made up of a low melting point material.
a. A and B are true and B is the correct explanation of A
b. A and B are true but B is not the correct explanation of A
c. A is true but B is false
d. B is true A is false

219 HRC fuse provides the best protection against
a. Open circuit
b. Overload
c. Reverse current
d. Short circuit

220 Which of the following is used in liquid fuses?
a. Transformer oil
b. Sulphur hexafluoride
c. Distilled water
d. Carbon tetrachloride

221 Main function of the fuse is to_____.
a. Protect the line
b. Open the circuit
c. Protect the appliance
d. Prevent excessive current

222 For a fuse wire of diameter ‘d’, fusing current is proportional to_____.
a. √d
b. $d^{1.2}$
c. $d^{1.5}$
d. d^{3}

223 If a combination of HRC fuse and circuit breaker is used, the circuit breaker operates_____.
a. For low overload currents
b. For short-circuit current
c. Under all abnormal currents
d. Combination is never used in practice

224 A fuse is inserted in_____.
a. Neutral
b. Earth continuity conductor
c. Phase
d. Both phase and neutral

225 On what factors does the current carrying capacity of a fuse depend?
I. Size of fuse wire, II. Fuse material, III. Surrounding of the fuse.
Choose the correct answer from the options given below.
a. Only I
b. Only I and III
c. Only II and III
d. I, II and III

226 The function(s) performed by fuse is (are), i. to carry the normal working current safely without heating,
ii. to break the circuit when current exceeds the limiting current .
Choose the correct answer from the options given below.
a. Only (i)
b. Only (ii)
c. Both (i) and (ii)
d. Neither (i) nor (ii)

227 A fuse is never inserted in_____.
a. Neutral wire
b. Negative of DC circuit
c. Positive of DC circuit
d. Phase line

228 Consider the following statements.
HRC fuse as compared to a rewireable fuse_____. A. Has no ageing effect, B. Has high speed of operation,
C. Has high rupturing capacity
a. Only A and B
b. Only B
c. Only B and C
d. A, B and C

229 The fusing current depends on_____.
a. Diameter of fuse wire
b. Number of wire
c. Length of the fuse wire
d. All of the above

230 The least expensive protection for over-current in a low voltage system is_____.
a. Rewirable fuse
b. Isolator
c. Circuit breaker
d. Air-break switch

231 A fuse is provided in an electric circuit to_____.
a. Reduce the power consumption in the circuit
b. Limit the current in the circuit
c. Safeguard the circuit against heavy current
d. Increase the current in the circuit

232 HRC fuse has rupturing capacity of capability_____in comparison with a circuit breaker.
a. Equal
b. Greater than
c. Less than
d. None of these

233 For better performance the suitable one is
a. Open type fuse
b. Kit-kat fuse
c. HRC fuse
d. Cut-outs

234 The function of the fuse in an electrical circuit is to protect_____.
a. Insulation resistance
b. Over loading of the circuit
c. Over voltage
d. Insulation resistance and excess voltage

235 The characteristics of the fusing element should be a wire of_____.
a. Low resistance
b. High resistance
c. High melting point
d. Low resistance & low melting point

236 Regarding HRC fuses which statement is not correct?
a. They do not deteriorate with time
b. They have inverse time current characteristics
c. Operation of the fuse is very reliable
d. It is not required to be replaced after each operation.

237 Fusing factor of a fuse is defined as the ratio of_____.
a. Maximum fusing current to the prospective current
b. Maximum fusing current to the cutoff current
c. Minimum fusing current to the rated carrying current
d. Maximum fusing current to the rated carrying current

238 The rating of fuse wire is always expressed in_____.
a. Ampere-hours
b. kWh
c. Amperes
d. None of the above

239 According to fuse law, the current carrying capacity varies as_____.
a. (diameter)
b. $(\text{diameter})^{1.5}$
c. $(\text{diameter})^{0.5}$
d. None of these

240 Fuse material must have_____.
a. High melting point and high specific resistance
b. Low melting point and high specific resistance
c. Low melting point and low specific resistance
d. High melting and low specific resistance

241 A fuse is provided in an electric circuit for_____.
a. Safeguarding the installation against heavy current
b. Reducing the current flowing the circuit
c. Reducing the power consumption
d. All options are correct

242 How should a fuse be installed in a circuit to insure proper operation?
a. Parallel to the load
b. Series with the load
c. In any way possible
d. At the ground point

243 Which among these fuse is very fast in operation?
a. Semiconductor fuses
b. High rupturing capacity fuse
c. Cartridge type
d. Kit kat type

244 A good fuse wire must have_____.
a. High melting point
b. High ohmic losses
c. High conductivity
d. High deterioration

245 Fusing current is the_____.
a. Maximum current at which the fuse element will get heated
b. Rated current of a fuse
c. The minimum current at which the fuse element will get heated
d. The maximum current at which the fuse element will melt

246 What is the S.I. unit of luminous intensity?

a. Lux
b. Lumen
c. Candela
d. Ste-radian

247 What is the working temperature of filament lamp?
a. 1500°C
b. 1800°C
c. 2000°C
d. 2300°C

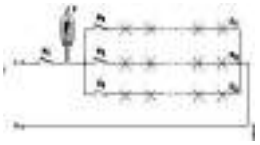
248 Which material is coated in tungsten electrode of a fluorescent tube lamp?
a. Silver oxide
b. Phosphor powder
c. Fluorescent powder
d. Barium and Strontium oxide

249 Which position MB type high pressure mercury vapour lamps are operated?
a. Vertical
b. Inclined
c. Horizontal
d. Any position

250 What is the function of leak transformer in high pressure sodium vapour lamp circuit?
a. Reduce the starting current
b. Reduce the working voltage
c. Increase the working voltage
d. Ignite the high voltage initially

251 How stroboscopic effect in industrial twin tube light fitting is reduced?
a. Connecting capacitor parallel to supply
b. Connecting capacitor in series with supply
c. Connecting capacitor in series with one tube light
d. Connecting two capacitors in series to each tube light

252 What is the current carrying capacity of flasher, if the current is 100 mA in each row?



a. 50 mA
b. 100 mA
c. 200 mA
d. 300 mA

253 Which term refers that the flow of light into a plane surface?
a. Lumen
b. Illuminance
c. Luminous flux
d. Luminous intensity

254 What is the purpose of igniter in high pressure sodium vapour lamp circuit?
a. Decreases the starting current
b. Increases the running voltage
c. Decreases the running current
d. Generates high voltage pulse at starting

255 Which type of light fitting design has free from glare?
a. Semi direct type
b. Semi indirect type
c. Direct lighting type
d. Indirect lighting type

256 Why the outer tube of a high pressure metal halide lamp made of boro -silicate glass?
a. Increase the lighting effect
b. Withstand heavy temperature
c. Withstand atmospheric pressure
d. Reduce the ultra violet radiation from lamp

257 What is the term refers luminous flux given by light source per unit solid angle?
a. Lumen
b. Candela
c. Illuminance

d. Luminous intensity

258 What is the unit of luminous flux?
a. Lux
b. Lumen
c. Candela
d. Lumen/m^2

259 What is the unit of luminous efficiency?
a. Lux
b. Lumen
c. Lumen/m^2
d. Lumen/watt

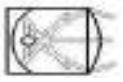
260 How the rate of evaporation in a vacuum bulb is reduced?
a. Filling inert gas
b. Producing arc in bulb
c. Reducing filament resistance
d. Increasing filament resistance

261 What is the main advantage of coiled coil lamp?
a. High melting point
b. Higher light output
c. Low operating voltage
d. Low power consumption

262 What is the name of the reflector?

a. Mirror type
b. Soft light type
c. Parabolic type
d. Dispersive type

263 What is the name of light?



a. Spot light
b. Bulk light
c. Flood light
d. Flash light

264 Which device provides ignition voltage and act as choke in a HPSV lamp?
a. Arc tube
b. Sodium vapour
c. Leak transformer
d. High pressure aluminium oxide

265 What is the name of lamp?
a. MAT type MV lamp
b. HP metal halide lamp
c. MB type HPMV lamp
d. MA type HPMV lamp

266 Which type of lighting system is used for flood and industrial lighting?
a. Direct lighting
b. Indirect lighting
c. Semi-direct lighting
d. Semi-indirect lighting

267 Which is the cold cathode lamp?
a. Halogen lamp
b. Neon sign lamp
c. Fluorescent lamp
d. Mercury vapour lamp

268 Battery charging equipment is generally installed_____.
a. In well ventilated location
b. In clean and dry place
c. As near as practical to the battery being charged
d. In location having all above features

269 If a lead-acid cell is discharged below 1.8 V the following will happen.
a. Capacity of cell will reduce
b. Sulphation of plates will occur
c. Internal resistance will increase
d. All above will occur

270 Self charge of a Ni-Fe cell is _____ Edison cell.
a. Equal to
b. Less than
c. More than
d. Much more than

271 Mercury cell has which of the following characteristics?
a. Flat discharge current-voltage curve
b. High power to weight ratio
c. Comparatively longer shelf life under adverse conditions of high temperature and humidity
d. All of the above

272 Which of the following is incorrect?
a. A storage cell has a reversible chemical reaction
b. A lead-acid cell can be recharged
c. A carbon-zinc cell has unlimited shelf life
d. A primary cell has an irreversible chemical reaction

273 Cells are connected in parallel to_____.
a. Increase the efficiency
b. Increase the current capacity
c. Increase the voltage output
d. Increase the internal resistance

274 The capacity of a lead-acid cell depends on_____.
a. Rate of discharge
b. Temperature
c. Density of electrolyte
d. All above

275 The internal resistance of a lead-acid cell is that of Edison cell_____.
a. Less than
b. More than
c. Equal to
d. None of the above

276 Undercharging_____.
a. Reduces specific gravity of the electrolyte
b. Increases specific gravity of the electrolyte
c. Produces excessive gassing
d. Increases the temperature

277 On overcharging a battery_____.
a. It will bring about chemical change in active materials
b. It will increase the capacity of the battery
c. It will raise the specific gravity of the electrolyte
d. None of the above will occur

278 Internal resistance of a cell is reduced by_____.
a. Using vent plug to permit gas formed during discharge
b. Increasing the plate area
c. Putting plates very close together
d. All above methods

279 If a battery is wrongly connected on charge following will happen_____.
a. Current delivered by the battery will be high
b. Current drawing will be nil
c. Current drawing will be very small
d. Current drawing will be very high

280 The following indicate that battery on charge has attained full charge:
a. Color of electrode
b. Gassing
c. Specific gravity
d. All above

281 Hydrogen evolved during charging produces explosive mixture when it is more than_____.
a. 2%
b. 4%
c. 6%
d. 8%

282 Under normal charging rate, the charging current should be_____.
a. 10% of capacity
b. 20% of capacity
c. 30% of capacity
d. 40% of capacity

283 The ratio of ampere-hour efficiency to watt-hour efficiency of a lead-acid cell is_____.
a. Just one
b. Always greater than one
c. Always less than one

d. None of the above

284 As compared to constant-current system, the constant-voltage system of charging a lead acid cell has the advantage of_____.
a. Reducing time of charging
b. Increasing cell capacity
c. Both (a) and (b)
d. Avoiding excessive gassing

285 The capacity of a lead-acid cell is measured in_____.
a. Amperes
b. Ampere-hours
c. Watts
d. Watt-hours

286 Negative plate of an Edison cell is made of_____.
a. Copper
b. Lead
c. Iron
d. Silver oxide

287 Following will occur if level of electrolyte falls below, plates_____.
a. Capacity of the cell is reduced
b. Life of the cell is reduced
c. Open plates are converted to lead sulphate
d. All above

288 Capacity of dry cells is_____.
a. More when it is supplying current for intermittent periods
b. More when it is supplying current for continuous periods
c. Unaffected by the type of discharge
d. None of the above

289 Level of electrolyte in a cell should be_____the level of plates.
a. Below
b. Equal to
c. Above
d. None of the above

290 Extent of corrosion in the underground metal works depend upon_____.
a. Amount of moisture
b. Type of metals
c. Type of soil chemicals
d. All above factors

291 When two batteries are connected in parallel, it should be ensured that_____.
a. They have same e.m.f.
b. They have same make
c. They have same ampere-hour capacity
d. They have identical internal resistance

292 Satellite power requirement is provided through_____.
a. Solar cells
b. Dry cells
c. Nickel-cadmium cells
d. Lead-acid batteries

293 "The mass of an ion liberated at an electrode is directly proportional to the quantity of electricity". The above statement is associated with_____.
a. Newton's law
b. Faraday's law of electromagnetic
c. Faraday's law of electrolysis
d. Gauss's law

294 The output voltage of a charger is_____.
a. Less than the battery voltage
b. Higher than the battery voltage
c. The same as the battery voltage
d. None of the above

295 In a lead-acid cell dilute sulphuric acid (electrolyte) approximately comprises the following
a. One part H_2O, three parts H_2SO_4
b. Two parts H_2O, two parts H_2SO_4
c. Three parts H_2O, one part H_2SO_4
d. All H_2SO_4

296 The average charging voltage for alkali cell is about
a. 1 V
b. 1.2 V
c. 1.7 V

d. 2.1 V

297 When the specific gravity of the electrolyte of a lead-acid cell is reduced to 1.1 to 1.15 the cell is in_____.
a. Charged state
b. Discharged state
c. Both (a) and (b)
d. Active state

298 In constant voltage charging method, the charging current from discharged to fully charged condition_____.
a. Decreases
b. Increases
c. Remains constant
d. None of the above

299 In a lead-acid cell, if the specific gravity of sulphuric acid is 1.8, it will require following ratio of acid to water to get mixture of specific gravity of 1.3.
a. 6 parts of acid to 4 parts of water
b. 4 parts of acid to 4 parts of water
c. 4 parts of acid to 6 parts of water
d. 4 parts of acid to 8 parts of water

300 Dry cell is a modification of_____.
a. Daniell cell
b. Leclanche cell
c. Lead-acid cell
d. Edison cell

301 Short circuiting of a cell may be caused_____.
a. Buckling of plates
b. Faulty separators
c. Lead particles forming circuit between positive and negative plates
d. Any one of above

302 Petroleum jelly is applied to the electrical connections to the lead-acid battery_____.
a. Prevent local heating
b. Prevent short-circuiting
c. Reduce path resistance
d. Prevent corrosion

303 The charge required to liberate one gram equivalent of any substance is known as_____constant.
a. Time
b. Faraday's
c. Boltzmann
d. None of these

304 The capacity of a battery is expressed in terms of_____.
a. Current rating
b. Voltage rating
c. Ampere-hour rating
d. None of the above

305 The ampere-hour efficiency of a lead-acid cell is normally between_____.
a. 20 to 30%
b. 40 to 50%
c. 60 to 70%
d. 90 to 95%

306 The open circuit voltage of any storage cell depends wholly upon_____.
a. Its chemical constituents
b. On the strength of its electrolyte
c. Its temperature
d. All above

307 Each cell has a vent cap_____.
a. To allow gases out when the cell is on charge
b. To add water to the cell if needed
c. To check the level of electrolyte
d. To do all above functions

308 Sulphated cells are indicated by_____.
a. The loss of capacity of the cell
b. The decrease of the specific gravity
c. The low voltage of the cell on discharge
d. All above conditions

309 Excessive charging a battery tends to_____.
a. Produce gassing
b. Increase the internal resistance of the battery

c. To corrode the positive plates into lead peroxide thereby weakening them physically
d. Bring about all above changes

310 Specific gravity of electrolyte in Edison cell is_____.
a. 0.8
b. 0.95
c. 1.1
d. 1.21

311 In a battery cover is placed over the element and sealed to the top of the battery container. This is done_____.
a. To reduce evaporation of water from electrolyte
b. To exclude dirt and foreign matter from the electrolyte
c. To discharge both of the above functions
d. To discharge none of the above functions

312 The common impurity in the electrolyte of lead-acid battery is_____.
a. Chlorine
b. Dust particles
c. Lead crystals
d. Iron

313 A constant-voltage generator has_____.
a. Minimum efficiency
b. Minimum current capacity
c. Low internal resistance
d. High internal resistance

314 During the charging of a lead-acid cell_____.
a. Its voltage increases
b. It gives out energy
c. Its cathode becomes dark chocolate brown in color
d. Specific gravity of H_2SO_4 decreases

315 Cells are connected in series in order to_____.
a. Increase the voltage rating
b. Increase the current rating
c. Increase the life of the cells
d. None of the above

316 The watt-hour efficiency of a lead-acid cell varies between_____.
a. 25 to 35%
b. 40 to 60%
c. 70 to 80%
d. 90 to 95%

317 Life of the Edison cell is at least_____.
a. Five years
b. Seven years
c. Eight years
d. Ten years

318 Excessive formation of lead sulphate on the surface of the plates happens because of_____.
a. Allowing a battery to stand in discharged condition for a long time
b. Topping up with electrolyte
c. Persistent undercharging
d. All the above

319 Cell short circuit results in_____.
a. Low sp. gravity electrolyte
b. Abnormal high temperature
c. Reduced gassing on charge
d. All above

320 Shelf life of a small dry cell is_____.
a. Equal to that of large dry cell
b. Less than that of large dry cell
c. More than that of large dry cell
d. None of the above

321 All the electrical connections between the battery and vehicle should be by_____.
a. Thin aluminium wires
b. Thin copper wires
c. Rigid cables
d. Flexible cables

322 Which of the following primary cells has the lowest voltage?
a. Lithium
b. Zinc-chloride
c. Mercury

d. Carbon-zinc

323 Which of the following has lower sp. gravity?
a. Dilute H_2SO_4
b. Concentrated H_2SO_4
c. Water
d. Any of the above

324 The capacity of a lead-acid cell does not depend on its_____.
a. Temperature
b. Rate of charge
c. Rate of discharge
d. Quantity of active material

325 Trickle charging of a storage battery helps to_____.
a. Maintain proper electrolyte level
b. Increase its reserve capacity
c. Prevent sulphation
d. Keep it fresh and fully charged

326 The active material of the positive plates of silver-zinc batteries is_____.
a. Silver oxide
b. Lead oxide
c. Lead
d. Zinc powder

327 The effect of sulphation is that the internal resistance_____.
a. Increases
b. Decreases
c. Remains same
d. None of the above

328 Internal resistance of a cell is due to_____.
a. Resistance of electrolyte
b. Electrode resistance
c. Surface contact resistance between electrode and electrolyte
d. All above

329 48 ampere-hour capacity would deliver a current of_____.
a. 48 amperes for 1 hour
b. 24 amperes for 2 hours
c. 8 amperes for 6 hours
d. 6 amperes for 8 hours

330 The body of Edison cell is made of_____.
a. Bakelite
b. Rubber
c. Nickel Plated steel
d. Aluminium

331 While preparing electrolyte for a lead-acid battery_____.
a. Water is poured into acid
b. Acid is poured into water
c. Anyone of the two can be added to other chemical
d. None of these

332 Which of the following factors adversely affect the capacity of the lead-acid battery?
a. Temperature of surroundings
b. Specific gravity of electrolyte
c. Rate of discharge
d. All of the above

333 On the average the ampere-hour efficiency of an Edison cell is about_____.
a. 0.4
b. 0.6
c. 0.7
d. 0.8

334 A dead storage battery can be revived by_____.
a. Adding distilled water
b. Adding so-called battery restorer
c. A dose of H_2SO_4
d. None of the above

335 When a lead-acid battery is in fully charged condition, the color of its positive plate is_____.
a. Dark grey
b. Brown
c. Dark brown
d. None of above

336 In a lead-acid cell, lead is called as_____.
a. Positive active material
b. Negative active material
c. Passive material
d. None of the above

337 Following will happen if battery charging rate is too high_____.
a. Excessive gassing will occur
b. Temperature rise will occur
c. Bulging and buckling of plates will occur
d. All above will occur

338 Ampere hour capacity of an industrial battery is based on _____hours discharge rate.
a. 8
b. 12
c. 16
d. 24

339 For a cell to work, which of the following condition(s) become necessary?
a. Two electrodes of different meta's should be inserted in the electrolyte, not touching each other
b. Electrolyte must chemically react with one of the electrodes
c. Electrolyte liquid or paste should be conducting
d. All above three conditions are necessary

340 Which among the following constitutes the major load for an automobile battery?
a. Brake light
b. Self starter
c. Parking lights
d. Spark plugs

341 The active materials on the positive and negative plates of a fully charged lead-acid battery are_____.
a. Lead and lead peroxide
b. Lead sulphate and lead
c. Lead peroxide and lead
d. None of the above

342 It is noticed that during charging_____.
a. There is a rise in voltage
b. Energy is absorbed by the cell
c. Specific gravity of H_2SO_4 is increased
d. All of the above

343 The specific gravity of electrolyte is measured by_____.
a. Manometer
b. A mechanical gauge
c. Hydrometer
d. Psychrometer

344 Batteries are charged by_____.
a. Rectifiers
b. Engine generator sets
c. Motor generator sets
d. Any one of the above methods

345 During discharge, the active material of both the positive and negative plates is changed to_____.
a. Pb
b. PbO_2
c. PbO
d. $PbSO_4$

346 Weston standard cell at 20°C has voltage of _____ volts.
a. 0.8
b. 0.9
c. 1.0187
d. 1.5

347 When the load resistance equals the generator resistance which of the following will be maximum?
a. Current
b. Efficiency of the circuit
c. Power in the load resistance
d. Voltage across the load resistance

348 In a lead-acid battery the energy is stored in the form of_____.
a. Charged ions
b. Chemical energy
c. Electrostatic energy
d. Electromagnetic energy

349 During charging the specific gravity of the electrolyte of a lead-acid battery_____.
a. Increases
b. Decreases
c. Remains the same

d. Becomes zero

350 During the charging and discharging of a nickel-iron cell,_____.
a. Corrosive fumes are produced
b. Water is neither formed nor absorbed
c. Nickel hydroxide remains un split
d. Its e.m.f. remains constant

351 The e.m.f. of an Edison cell, when fully charged, is nearly_____.
a. 1.4 V
b. 1 V
c. 0.9 V
d. 0.8 V

352 Over charging_____.
a. Produces excessive gassing
b. Loosens the active material
c. Increases the temperature resulting in buckling of plates
d. All above

353 In constant-current charging method, the supply voltage from discharged to fully charged condition_____.
a. Decreases
b. Increases
c. Remains constant
d. None of the above

354 Life of the batteries is in the following ascending order.
a. Lead-acid cell, Edison cell, Nickel cadmium cell
b. Lead-acid cell, Nickel-cadmium cell, Edison cell
c. Edison cell, Nickel-cadmium cell, lead-acid cell
d. Nickel-cadmium cell, Edison cell, lead-acid cell

355 Capacity of a battery is expressed in_____.
a. Ah
b. Vh
c. Wh
d. kWh

356 Charging a sulphated battery at high rate results in_____.
a. Boiling of electrolyte due to gassing
b. Warping of plates
c. Damage to separators, cell caps covers and battery case due to excessive temperature
d. All above

357 Which of the following cell has reversible chemical reaction?
a. Lead-acid
b. Mercury oxide
c. Carbon-zinc
d. Silver-oxide

358 The best indication about the state of charge on a lead-acid battery is given by_____.
a. Output voltage
b. Temperature of electrolyte
c. Specific gravity of electrolyte
d. None of the above

359 It is noticed that during discharging the following does not happen
a. Both anode and cathode become $PbSO_4$
b. Specific gravity of H_2SO_4 decreases
c. Voltage of the cell decreases
d. The cell absorbs energy

360 Electrolyte used in an Edison cell is
a. NaOH
b. KOH
c. HCl
d. HNO_3

361 Which of the following will happen if the specific gravity of electrolyte becomes more than 1.23?
a. Loss of capacity
b. Loss of life
c. Corrosion of the grids of the plate
d. All above

362 The current flow through electrolyte is due to the movement of_____.
a. Ions
b. Holes
c. Electrons
d. None of the above

363 Charging of sulphated battery produces_____heat.
a. No
b. Very little
c. Less
d. More

364 The storage battery generally used in electric power station is_____.
a. Nickel-cadmium battery
b. Zinc-carbon battery
c. Lead-acid battery
d. None of the above

365 The internal resistance of an alkali cell is nearly_____times that of the lead-acid cell.
a. Two
b. Three
c. Four
d. Five

366 In_____system the charging current is intermittently controlled at either a maximum or minimum value
a. Two rate charge control
b. Trickle charge
c. Floating charge
d. An equalizing charge

367 Local action in a battery is indicated by_____.
a. Excessive gassing under load conditions
b. Excessive drop in the specific gravity of electrolyte even when the cell is on open circuit
c. Both (a) and (b)
d. None of the above

368 During the idle period of the battery, strong electrolyte tends to change the active material of the cell into_____.
a. PbO_2
b. $PbSO_4$
c. PbO
d. Pb

369 Those substances of the cell which take active part in chemical combination and hence produce electricity during charging or discharging are known as _____materials.
a. Passive
b. Active
c. Redundant
d. Inert

370 Electrolyte used in a lead-acid cell is_____.
a. NaOH
b. Only H_2SO_4
c. Only water
d. Dilute H_2SO_4

371 The lead-acid cell should never be discharged beyond_____.
a. 1.8 V
b. 1.9 V
c. 2 V
d. 2.1 V

372 Persons preparing electrolyte should wear_____.
a. Goggles or other face shield
b. Rubber
c. Rubber boots and gloves
d. All above safety devices

373 Which of the following battery is used for aircraft?
a. Lead-acid battery
b. Nickel-iron battery
c. Dry cell battery
d. Silver oxide battery

374 As compared to a lead-acid cell, the efficiency of a nickel-iron cell is less due to its_____.
a. Compactness
b. Lower e.m.f.
c. Small quantity of electrolyte used
d. Higher internal resistance

375 In order that a hydrometer may float vertically in electrolyte its C.G. should be_____.
a. Lowered
b. Raised

c. Undisturbed
d. Displaced sideways

376 Which of the following primary cells has the highest voltage?
a. Manganese-alkaline
b. Carbon-zinc
c. Lithium
d. Mercury

377 Five 2 V cells are connected in parallel. The output voltage is_____.
a. 1 V
b. 1.5 V
c. 1.75 V
d. 2 V

378 The active materials of a nickel-iron battery are_____.
a. Nickel hydroxide
b. Powdered iron and its oxide
c. 21% solution of KOH
d. All of the above

379 When the lead-acid cell is fully charged, the electrolyte assumes _____appearance
a. Dull
b. Reddish
c. Bright
d. Milky

380 Lead-acid cell has a life of nearly charges and discharges_____.
a. 500
b. 700
c. 1000
d. 1250

381 Internal short circuits are caused by_____.
a. Breakdown of one or more separators
b. Excess accumulation of sediment at the bottom of the cell
c. Both (a) and (b)
d. None of the above

382 The substances which combine together to store electrical energy during the charge are called _____materials
a. Active
b. Passive
c. Inert
d. Dielectric

383 Battery container should be acid resistance; therefore it is made up of_____.
a. Glass
b. Plastic
c. Wood
d. All above

384 _____of electrolyte indicates the state of charge of the battery
a. Color
b. Mass
c. Viscosity
d. Specific gravity

385 In alkaline cell the electrolyte is_____.
a. Dilute sulphuric acid
b. Concentrated sulphuric acid
c. NaOH
d. KOH

386 A battery of 6 cells will show a drop of_____volts from fully charged state to fully discharged state.
a. 1
b. 1.5
c. 2.4
d. 2.9

387 A typical output of a solar cell is_____.
a. 0.1 V
b. 0.26 V
c. 1.1 V
d. 2 V

388 Which device converts sunlight into electrical energy?
a. Photo voltaic cell
b. Liquid crystal diode
c. Light emitting diode
d. Light dependent resistor

389 Which law secondary cell works?
a. Lenz's law
b. Joule's law
c. Faradays laws of electrolysis
d. Faradays laws of electromagnetic induction

390 What is the formula to calculate the Mass deposited during electrolysis?
a. M = it gm
b. M = zit gm
c. M = it/z gm
d. M = z/it gm

391 How the capacity of batteries is specified?
a. Volt
b. Watt
c. Volt Ampere
d. Ampere hour

392 What is the name of defect that bending of plates in secondary cells?
,
a. Buckling
b. Local action
c. Partial short
d. Hard sulphation

393 What is the unit of electric charge?
a. Volt
b. Watt
c. Ampere
d. Coulomb

394 What is the output voltage of lithium cell?
a. 1.2 V
b. 1.5 V
c. 1.8 V
d. 2.5 V

395 What is the method of charging if the battery is to be charged for short duration at higher rate?
a. Initial charge
b. Boost charge
c. Trickle charge
d. Freshening charge

396 Which electrolyte used in carbon zinc dry cells?
a. Dilute sulphuric acid
b. Ammonium chloride
c. Potassium hydroxide
d. Concentrated hydrochloric acid

397 Which effect causes by passing electric current in liquids?
a. Heating
b. Lighting
c. Magnetic
d. Chemical

398 Which material is used to make negative plates in lead acid battery?
a. Lead dioxide
b. Sponge lead
c. Lead peroxide
d. Lead sulphate

399 Which technique is used to control the corrosion of a metal surface?
a. Anodic protection
b. Cathodic protection
c. Electrolytic protection
d. Electrostatic protection

400 Which cell is most often used in digital watches?
a. Voltaic
b. Lithium
c. Mercury
d. Silver oxide

401 What is the effect if one cell is connected with reverse polarity in a parallel combination circuit?
a. Voltage become zero
b. Become open circuit
c. Will get short circuited
d. No effect will function normally

402 What is the function of fine selector switch in battery charger?
a. Selection of current rating
b. Selection of charging time
c. Selection of voltage range
d. Selection of charging method

403 What is the effect on output power with respect to temperature in solar cells?
a. No effect on change in temperature

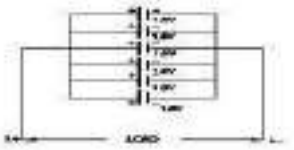
b. Increases with increase in temperature
c. Decreases with increase in temperature
d. Decreases with decrease in temperature

404 What purpose the hydrometer is used during charging of battery?
a. Determine the AH capacity
b. Assess the battery voltage level
c. Assess the discharge level of battery
d. Determine the specific gravity of electrolyte

405 What is the formula for Faraday's first law of electrolysis?
a. M = Z/it
b. M = Zit
c. M = it/ Z
d. M = Zt/i

406 Which is used as an electrolyte in lead acid battery?
a. Hydrochloric acid
b. Ammonium chloride
c. Potassium hydroxide
d. Diluted sulphuric acid

407 What is the total voltage of the circuit?



a. 1.5 Volt
b. 6.0 Volt
c. 7.5 Volt
d. 9.0 Volt

408 What is the outcome at the positive plate, after the chemical reaction in lead acid battery during charging?
a. Sponge lead(Pb)
b. Lead peroxide(PbO_2)
c. Lead sulphate($PbSO_4$)
d. Lead sulphate($PbSO_4$) + water

409 Why the vent plug is kept open during charging of a battery?
a. To escape the gas freely
b. To allow oxygen enter inside
c. To check the level of electrolyte
d. To check the colour changes in the plates

410 In which method the battery is charged at low current for long period?
a. Rectifier method
b. Trickle charging method
c. Constant current method
d. Constant potential method

411 How the hard sulphation defect in lead acid battery can be rectified?
a. Changing with new electrolyte
b. Replacing with new electrodes
c. Recharging the battery for a longer period at low current
d. Recharging the battery for short period at high current

412 Which material is used as cathode (-ve) electrode in silver oxide battery?
a. Zinc
b. Copper
c. Carbon
d. Silver oxide

413 What is the Electro Chemical Equivalent (ECE) of silver?
a. 0.001182 mg/coulomb
b. 0.01182 mg/coulomb
c. 0.1182 mg/coulomb
d. 1.1182 mg/coulomb

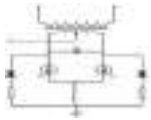
414 What is the outcome of the chemical reaction that takes place in negative plate of lead acid battery during discharging?
a. Sponge lead(Pb)
b. Lead peroxide(PbO_2)
c. Lead sulphate($PbSO_4$)
d. Lead sulphate + water

415 What is the purpose of separator in lead acid battery?
a. To provide a path for electrolyte
b. To hold the positive and negative plate firmly

c. To avoid short in between the positive and negative plates
d. To keep positive and negative plate in a sequence array

416 Which instrument is used to measure the specific gravity of electrolyte in lead acid battery?
a. Barometer
b. Hydrometer
c. Anima meter
d. High rate discharge tester

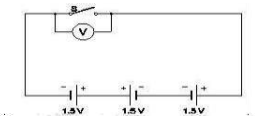
417 Which type of inverter circuit?



a. Driven inverter
b. SCR used inverter
c. Single transistor inverter
d. Two winding transformer inverter

418 What is the effect of buckling defect in a lead acid battery?
a. Bending of the electrodes
b. Reducing the strength of electrolyte
c. Making short between the electrodes
d. Increasing the internal resistance

419 What is the total output voltage of the circuit?



a. 0 V
b. 1.5 V
c. 3.0 V
d. 4.5 V

420 Which is used as a positive electrode in a dry cell?
a. Zinc
b. Carbon
c. Copper
d. Lithium

421 What happen to the terminal voltage of a cell if load increases?
a. Increases
b. Decreases
c. Falls to zero
d. Remains same

422 How local action defect is prevented in voltaic cell?
a. By connecting cells in series
b. By using a depolarizing agent
c. By connecting cells in parallel
d. By amalgamating the zinc plate

423 What does the letter Z indicate in the formula M=Z/it?
a. Time in seconds
b. E.E of electrolyte
c. Amount of current in Amp
d. Mass deposited in grams

424 What is the Electro Chemical Equivalent (ECE) of copper?
a. 0.329 mg / coulomb
b. 0.329 g/ coulomb
c. 1.1182 mg / coulomb
d. 1.1182 g/ coulomb

425 Which is the cause for buckling defect in lead acid battery?
a. Overcharging or over discharging
b. Charging with low rate for short period
c. Formation of sediments falling from the plate
d. Battery is kept in discharged condition for long period

426 Which apparatus is used to check the charging condition of voltage in battery?
a. Voltmeter
b. Multi-meter
c. Hydrometer
d. High rate discharge tester

427 The use of_____instruments is merely confined within laboratories as standardizing instruments.
a. absolute
b. indicating
c. recording
d. integrating
e. none of the above

428 Which of the following instruments indicate the instantaneous value of the electrical quantity being measured at the time at which it is being measured?
a. Absolute instruments
b. Indicating instruments
c. Recording instruments
d. Integrating instruments

429 _____instruments are those which measure the total quantity of electricity delivered in a particular time.
a. Absolute
b. Indicating
c. Recording
d. Integrating

430 Which of the following are integrating instruments?
a. Ammeters
b. Voltmeters
c. Wattmeters
d. Ampere-hour and watt-hour meters

431 Resistances can be measured with the help of_____.
a. wattmeters
b. voltmeters
c. ammeters
d. ohmmeters and resistance bridges

432 According to application, instruments are classified as_____.
a. switch board
b. portable
c. both (a) and (b)
d. moving coil
e. moving iron

433 Which of the following essential features is possessed by an indicating instrument?
a. Deflecting device
b. Controlling device
c. Damping device
d. All of the above

434 A_____device prevents the oscillation of the moving system and enables the latter to reach its final position quickly.
a. deflecting
b. controlling
c. damping
d. any of the above

435 The spring material used in a spring control device should have the following property.
a. Should be non-magnetic
b. Most be of low temperature co-efficient
c. Should have low specific resistance
d. Should not be subjected to fatigue

436 Which of the following properties, damping oil must possess?
a. Must be a good insulator
b. Should be non-evaporating
c. Should not have corrosive action upon the metal of the vane
d. The viscosity of the oil should not change with the temperature

437 A moving-coil permanent-magnet instrument can be used as_____by using a low resistance shunt.
a. ammeter
b. voltmeter
c. flux-meter
d. ballistic galvanometer

438 A moving-coil permanent-magnet instrument can be used as flux-meter_____.
a. by using a low resistance shunt
b. by using a high series resistance
c. by eliminating the control springs
d. by making control springs of large moment of inertia

439 Which of the following devices may be used for extending the range of instruments?
a. Shunts
b. Multipliers
c. Current transformers
d. Potential transformers

440 An induction meter can handle current up to_____.

a. 10 A
b. 30 A
c. 60 A
d. 100 A

441 For handling greater currents induction wattmeters are used in conjunction with_____.
a. potential transformers
b. current transformers
c. power transformers
d. either of the above

442 Induction type single phase energy meters measure electric energy in_____.
a. kW
b. Wh
c. kWh
d. VAR

443 Most common form of meters met with in every day domestic and industrial installations are_____.
a. mercury motor meters
b. commutator motor meters
c. induction type single phase energy meters
d. all of the above

444 Which of the following meters are not used on circuits_____.
a. Mercury motor meters
b. Commutator motor meters
c. Induction meters
d. None of the above

445 Which of the following is an essential part of a motor meter?
a. An operating torque system
b. A braking device
c. Revolution registering device
d. All of the above

446 A potentiometer may be used for_____.
a. measurement of resistance
b. measurement of current
c. calibration of ammeter
d. calibration of voltmeter

447 _____is an instrument which measures the insulation resistance of an electric circuit relative to earth and one another,
a. Tangent galvanometer
b. Megger
c. Current transformer
d. None of the above

448 The household energy meter is_____.
a. an indicating instrument
b. a recording instrument
c. an integrating instrument
d. none of the above

449 The pointer of an indicating instrument should be_____.
a. very light
b. very heavy
c. either (a) or (b)
d. neither (a) nor (b)

450 The chemical effect of current is used in_____.
a. ammeter hour meter
b. ammeter
c. energy meter
d. none of the above

451 In majority of instruments damping is provided by_____.
a. fluid friction
b. spring
c. eddy currents
d. all of the above

452 An ammeter is a_____.
a. secondary instrument
b. absolute instrument
c. recording instrument
d. integrating instrument

453 In a portable instrument, the controlling torque is provided by_____.
a. spring
b. gravity
c. eddy currents
d. all of the above

454 The disc of an instrument using eddy current damping should be of_____.

a. conducting and magnetic material
b. non-conducting and magnetic material
c. conducting and non-magnetic material
d. none of the above

455 The switch board instruments_____.

a. should be mounted in vertical position
b. should be mounted in horizontal position
c. either (a) or (b)
d. neither (a) nor (b)

456 The function of shunt in an ammeter is to_____.

a. by pass the current
b. increase the sensitivity of the ammeter
c. increase the resistance of ammeter
d. none of the above

457 The multiplier and the meter coil in a voltmeter are in_____.

a. series
b. parallel
c. series-parallel
d. none of the above

458 A moving iron instrument can be used for_____.

a. D.C. only
b. A.C. only
c. both (a) and (b)
d. neither (a) nor (b)

459 The scale of a rectifier instrument is_____.

a. linear
b. non-linear
c. either (a) or (b)
d. neither (a) nor (b)

460 For measuring current at high frequency we should use_____.

a. moving iron instrument
b. electrostatic instrument
c. thermocouple instrument
d. none of the above

461 The resistance in the circuit of the moving coil of a dynamometer wattmeter should be_____.

a. almost zero
b. low
c. high
d. none of the above

462 A dynamometer wattmeter can be used for_____.

a. both a.c. and d.c.
b. a.c. only
c. d.c. only
d. none of the above

463 An induction wattmeter can be used for_____.

a. both A.C. and D.C.
b. A.C. only
c. D.C. only
d. any of the above

464 The pressure coil of a wattmeter should be connected on the supply side of the current coil when_____.

a. load impedance is high
b. load impedance is low
c. supply voltage is low
d. none of the above

465 In a low power factor wattmeter the pressure coil is connected

a. to the supply side of the current coil
b. to the load side of the current coil
c. in any of the two meters at connection
d. none of the above

466 In a low power factor wattmeter the compensating coil is connected_____.

a. in series with current coil
b. in parallel with current coil
c. in series with pressure coil
d. in parallel with pressure coil

467 In a 3-phase power measurement by two wattmeter method, both the watt meters had identical readings. The power factor of the load was_____.
a. unity
b. 0.8 lagging
c. 0.8 leading
d. zero

468 In a 3-phase power measurement by two wattmeter method the reading of one of the wattmeter was zero. The power factor of the load must be_____.
a. unity
b. 0.5
c. 0.3
d. zero

469 The adjustment of position of shading bands, in an energy meter is done to provide_____.
a. friction compensation
b. creep compensation
c. braking torque
d. none of the above

470 An ohmmeter is a_____.
a. moving iron instrument
b. moving coil instrument
c. dynamometer instrument
d. none of the above

471 When a capacitor was connected to the terminal of ohmmeter, the pointer indicated a low resistance initially and then slowly came to infinity position. This shows that capacitor is_____.
a. short-circuited
b. all right
c. faulty
d. open circuited

472 For measuring a very high resistance we should use_____.
a. Kelvin's double bridge
b. Wheat stone bridge
c. Meggar
d. None of the above

473 The electrical power to a meggar is provided by_____.
a. battery
b. permanent magnet D.C. generator
c. A.C. generator
d. any of the above

474 In a meggar controlling torque is provided by_____.
a. spring
b. gravity
c. coil
d. eddy current

475 The operating voltage of a meggar is about_____.
a. 6 V
b. 12 V
c. 40 V
d. 100 V

476 Murray loop test can be used for location of_____.
a. ground fault on a cable
b. short circuit fault on a cable
c. both the ground fault and the short-circuit fault
d. none of the above

477 Which of the following devices should be used for accurate measurement of low D.C. voltage?
a. Small range moving coil voltmeter
b. D.C. potentiometer
c. Small range thermocouple voltmeter
d. None of the above

478 It is required to measure the true open circuit e.m.f. of a battery. The best device is_____.
a. D.C. voltmeter
b. Ammeter and a known resistance
c. D.C. potentiometer
d. None of the above

479 A voltage of about 200 V can be measured
a. directly by a D.C. potentiometer
b. a D.C. potentiometer in conjunction with a volt ratio box

c. a D.C. potentiometer in conjunction with a known resistance
d. none of the above

480 A direct current can be measured by_____.
a. a D.C. potentiometer directly
b. a D.C. potentiometer in conjunction with a standard resistance
c. a D.C. potentiometer in conjunction with a volt ratio box
d. none of the above

481 To measure a resistance with the help of a potentiometer it is_____.
a. necessary to standardize the potentiometer
b. not necessary to standardize the potentiometer
c. necessary to use a volt ratio box in conjunction with the potentiometer
d. none of the above

482 A phase shifting transformer is used in conjunction with_____.
a. D.C. potentiometer
b. Drysdale potentiometer
c. A.C. co-ordinate potentiometer
d. Crompton potentiometer

483 Basically a potentiometer is a device for_____.
a. comparing two voltages
b. measuring a current
c. comparing two currents
d. measuring a voltage

484 In order to achieve high accuracy, the slide wire of a potentiometer should be_____.
a. as long as possible
b. as short as possible
c. neither too small not too large
d. very thick

485 To measure an A.C. voltage by using an A.C. potentiometer, it is desirable that the supply for the potentiometer in taken_____.
a. from a source which is not the same as the unknown voltage
b. from a battery
c. from the same source as the unknown voltage
d. any of the above

486 The stator of phase shifting transformer for use in conjunction with an A.C. potentiometer usually has a_____.
a. single-phase winding
b. two-phase winding
c. three-phase winding
d. any of the above

487 In an A co-ordinate potentiometer, the currents in the phase and quadrature potentiometer are adjusted to be_____.
a. out of phase by 90°
b. out of phase by 60°
c. out of phase by 30°
d. out of phase by 0°

488 For measurements on high voltage capacitors, the suitable bridge is_____.
a. Wien bridge
b. Modified De Shanty's bridge
c. Schering bridge
d. Any of the above

489 In an Anderson bridge, the unknown inductance is measured in terms of_____.
a. known inductance and resistance
b. known capacitance and resistance
c. known resistance
d. known inductance

490 Wagner earthing device is used to eliminate errors due to
a. electrostatic coupling
b. electromagnetic coupling
c. both (a) and (b)
d. none of the above

491 For measurement of mutual inductance we can use_____.
a. Anderson bridge
b. Maxwell's bridge
c. Heaviside bridge
d. Any of the above

492 For measurement of inductance having high value, we should use_____.
a. Maxwell's bridge
b. Maxwell Wein bridge
c. Hay's bridge
d. Any of the above

493 If the current in a capacitor leads the voltage by 80°, the loss angle of the capacitor is_____.
a. 10°
b. 80°
c. 120°
d. 170°

494 In a Schering bridge the potential of the detector above earth potential is_____.
a. a few volts only
b. 1 kV
c. 5 kV
d. 10 kV

495 To avoid the effect of stray magnetic field in A.C. bridges we can use_____.
a. magnetic screening
b. Wagner earthing device
c. wave filters
d. any of the above

496 If an inductance is connected in one arm of bridge and resistances in the remaining three arms,_____.
a. the bridge can always be balanced
b. the bridge cannot be balanced
c. the bridge can be balanced if the resistances have some specific values
d. the bridge balance is not required

497 A power factor meter has
a. one current circuit and two pressure circuits
b. one current circuit and one pressure circuit
c. two current circuits and one pres¬sure circuit
d. none of the above

498 The two pressure coils of a single phase power factor meter have_____.
a. the same dimensions and the same number of turns
b. the same dimension but different number of turns
c. the same number of turns but different dimensions
d. none of the above

499 In a single phase power factor meter the phase difference between the currents in the two pressure coils is
a. exactly 0°
b. approximately 0°
c. exactly 90°
d. approximately 90°

500 In a dynamometer 3-phase power factor meter, the planes of the two moving coils are at_____.
a. 0°
b. 60°
c. 90°
d. 120°

501 In a vibrating reed frequency meter the natural frequencies of two adjacent reeds have a difference of_____.
a. 0.1 Hz
b. 0.25 Hz
c. 0.5 Hz
d. 1.5 Hz

502 In a Weston frequency meter, the magnetic axes of the two fixed coils are_____.
a. parallel
b. perpendicular
c. inclined at 60°
d. inclined at 120°

503 A Weston frequency meter is_____.
a. moving coil instrument
b. moving iron instrument
c. dynamometer instrument
d. none of the above

504 A Weston synchronoscope is a_____.
a. moving coil instrument
b. moving iron instrument
c. dynamometer instrument
d. none of the above

505 In a Weston synchronoscope, the fixed coils are connected across_____.
a. bus-bars
b. incoming alternator
c. a lamp
d. none of the above

506 In Weston synchronoscope the moving coil is connected across_____.
a. bus-bars
b. incoming alternator
c. fixed coils
d. any of the above

507 The power factor of a single phase load can be calculated if the instruments available are_____.
a. one voltmeter and one ammeter
b. one voltmeter, one ammeter and one wattmeter
c. one voltmeter, one ammeter and one energy meter
d. any of the above

508 The desirable static characteristics of a measuring system are_____.
a. accuracy and reproducibility
b. accuracy, sensitivity and reproducibility
c. drift and dead zone
d. static error

509 The ratio of maximum displacement deviation to full scale deviation of the instrument is called
a. static sensitivity
b. dynamic deviation
c. linearity
d. precision or accuracy

510 Systematic errors are_____.
a. instrumental errors
b. environmental errors
c. observational errors
d. all of the above

511 Standard resistor is made from_____.
a. Platinum
b. Manganin
c. Silver
d. Nichrome

512 Commonly used standard capacitor is_____.
a. spherical type
b. concentric cylindrical type
c. electrostatic type
d. multilayer parallel plate type

513 Operating torques in analogue instruments are_____.
a. deflecting and control
b. deflecting and damping
c. deflecting, control and damping
d. vibration and balancing

514 Commonly used instruments in power system measurement are
a. induction
b. moving coil or iron
c. rectifier
d. electrostatic

515 Damping of the Ballistic galvanometer is made small to_____.
a. get first deflection large
b. make the system oscillatory
c. make the system critically damped
d. get minimum overshoot

516 If an instrument has cramped scale for larger values, then it follows_____.
a. square law
b. logarithmic law
c. uniform law
d. none of the above

517 Volt box is a component to_____.
a. extend voltage range
b. measure voltage
c. compare voltage in a box

d. none of the above

518 E.m.f. of a Weston cell is accurately measured by_____.
a. electrostatic voltmeter
b. hot wire voltmeter
c. isothermal voltmeter
d. Electro-dynamic voltmeter

519 The gravity controlled instrument has crowded scale because current is proportional to_____.
a. balancing weight
b. deflection angle
c. sine of deflection angle
d. cosine of deflection angle

520 A sensitive galvanometer produces large deflection for a_____.
a. small value of current
b. large value of current
c. large value of power
d. large value of voltage
e. none of the above

521 A multi-range instrument has-_____.
a. multiple shunt or series resistances inside the meter
b. Multi-coil arrangement
c. variable turns of coil
d. multi range meters inside the measurement system
e. any of the above

522 The rectifier instrument is not free from_____.
a. temperature error
b. wave shape error
c. frequency error
d. all of the above

523 Alternating current is measured by_____.
a. induction ammeter
b. permanent magnet type ammeter
c. electrostatic ammeter
d. moving iron repulsion type voltmeter

524 Most sensitive galvanometer is_____.
a. elastic galvanometer
b. vibration galvanometer
c. Duddlb galvanometer
d. spot ballistic galvanometer

525 Instrument transformers are_____.
a. potential transformers
b. current transformers
c. both (a) and (b)
d. power transformers

526 An instrument transformer is used to extend the range of_____.
a. induction instrument
b. electrostatic instrument
c. moving coil instrument
d. any of the above

527 Wattmeter cannot be designed on the principle of_____.
a. electrostatic instrument
b. thermocouple instrument
c. moving iron instrument
d. Electro-dynamic instrument

528 In an energy meter, braking torque is produced to_____.
a. safe guard it against creep
b. brake the instrument
c. bring energy meter to stand still
d. maintain steady speed and equal to driving torque

529 Various adjustments in an energy meter include_____.
a. light load or friction
b. lag and creep
c. overload and voltage compensation
d. temperature compensation
e. all of the above

530 The power of a n-phase circuit can be measured by using a minimum of_____.
a. (n - 1) wattmeter elements
b. n wattmeter elements
c. (n + 1) wattmeter elements
d. 2n wattmeter elements

531 Two holes in the disc of energy meter are drilled at the opposite sides of the spindle to_____.
a. improve its ventilation

b. eliminate creeping at no load
c. increase its deflecting torque
d. increase its braking torque

532 Which of the following is measured by using a vector voltmeter?
a. Amplifier gain and phase shift
b. Filler transfer functions
c. Complex insertion loss
d. All of the above

533 The principle on which vector voltmeter is based is_____.
a. that it works on the principle of complex variation
b. that it measures the response of linear ramp voltage
c. same as digital meter
d. that it measures the amplitude of a single at two points and at the same time measures their phase difference

534 To measure radio frequency, the suitable frequency meter is_____.
a. Weston frequency meter
b. reed vibrator frequency meter
c. heterodyne frequency meter
d. electrical resonance frequency meter

535 Which force is required to move the pointer from zero position in an indicating instrument?
a. Controlling force
b. Deflecting force
c. Air friction damping
d. Eddy current damping

536 Which is the position to use the instrument provided with gravity control?
a. Any position
b. Vertical position
c. Inclined position
d. Horizontal position

537 What is the name of the scale?

a. Linear scale
b. Coarse scale
c. Extended scale
d. Non-linear scale

538 Which error is caused by the incorrect position of instrument reading?
a. Device error
b. Human error
c. Influence error
d. Switching error

539 Which instrument is used to measure one ohm and below one ohm resistance value accurately?
a. Meg-ohm meter
b. Multi-meter (analog)
c. Shunt type ohm meter
d. Series type ohm meter

540 What is the purpose of the 3rd terminal provided in a advanced megohm meter?
a. Get higher ohmic values
b. Pass the excess voltage to ground
c. Pass the excess current to ground
d. Get accurate readings without oscillation

541 What is the name of the shunt resistance material?

a. Copper
b. Eureka
c. Nichrome
d. Manganin

542 What is the reason for the moving coil meter having uniform scale?
a. Deflecting torque is directly proportional to the current

b. Deflecting torque is inversely proportional to the current
c. Deflecting torque is inversely proportional to the square of the current
d. Deflecting torque is directly proportional to the square of the current

543 Which error if the energy meter disc rotating continuously on no load?
a. Speed error
b. Phase error
c. Friction error
d. Creeping error

544 What is the effect on CT if its secondary is kept open?
a. CT primary burns out CT
b. Volt ampere capacity reduces
c. Volt ampere capacity increases
d. CT secondary winding burns out CT

545 What is the purpose of variable resistor connected across shunt type ohm meter?
a. Avoid draining of battery
b. Minimize the error in reading
c. Adjust the current to safe value
d. Adjust the pointer to zero adjustment

546 Which material is used to make control spring in measuring instruments?
a. Steel
b. Silver
c. Tinned copper
d. Phosphor bronze

547 Which electrical effect that the single phase energy meter works?
a. Heating effect
b. Induction effect
c. Chemical effect
d. Electrostatic effect

548 Which is the position to use the instrument provided with spring control?
a. Any position
b. Vertical position only
c. Inclined position only
d. Horizontal position only

549 What is the name of meter?
a. AC multi-range ammeter
b. DC multi-range voltmeter
c. AC and DC multi-range ammeter
d. AC and DC multi-range voltmeter

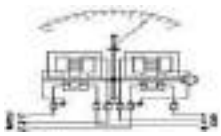
550 Which instrument is an example of an integrating instrument?
a. AC voltmeter
b. DC voltmeter
c. Energy meter
d. Tangent galvanometer

551 How the creeping error is controlled in energy meter?
a. By reducing rated voltage
b. By increasing the inductive load
c. By adjusting the brake magnet position
d. By drilling two holes diametrically opposite on disc

552 Why the scale of the moving iron instrument is having un-uniform scale?
a. Deflecting force is directly proportional to the Current
b. Deflecting force is inversely proportional to the Current
c. Deflection of force is directly proportional to the square of the Current ,
d. Deflection force is inversely proportional to the square of the Current

553 Which source of measuring error is caused by the effect of magnetic fields?
a. Device error
b. Human error
c. Influence error
d. Switching error

554 Which type of wattmeter?



a. Three element 4 wire wattmeter

b. Two element 3 phase wattmeter
c. Three element 3 phase wattmeter
d. Three phase two element with C.T & P.T

555 Which type of instrument is used with air friction damping?
a. Moving coil instrument
b. Moving iron instrument
c. Induction type instrument
d. Dynamo meter type instrument

556 Which type of energy meter works with neutral connection?
a. Three phase two element
b. Three phase three element
c. Single phase single element
d. Three phase two element with CT & PT

557 What is the type of frequency meter?

a. Weston type
b. Ratio meter type
c. Electro dynamic type
d. Mechanical resonance type

558 What is the unit of sensitivity in instruments?
a. Volt / ohm
b. Ohm / volt
c. Ohm-meter
d. Ohm / meter

559 Why two straight holes are provided in the aluminium disc in energy meter?
a. To reduce the disc weight
b. For power factor correction
c. To prevent the flux leakage
d. To arrest the creeping error

560 What is the name of the instrument?

a. Absolute instrument
b. Indicating instrument
c. Recording instrument
d. Integrating instrument

561 Why damping force is required in a moving coil instrument?
a. Makes the needle movement faster
b. Helps the deflecting force to act fast
c. Brings the needle to its zero position
d. Arrests the needle without oscillations

562 What is the function of soft iron core in a moving coil instrument?
a. Strengthens the deflection force
b. Controls the needle's movement
c. Provides meter with maximum sensitivity
d. Provide uniform distribution of magnetic flux in air gap

563 Which parameter is the cause for loading effect on measuring instruments?
a. Low accuracy
b. High sensitivity
c. Low sensitivity
d. Low influence error

564 Which meter is used to measure revolution per minute of a motor?
a. Tachometer
b. Energy meter
c. Ampere hour meter
d. Centre zero ammeter

565 How to identify the moving iron type instrument?
a. No terminal marking
b. Terminal marked (+) only
c. One terminal coloured red
d. Terminal marked (+) and (-)

566 Which is an absolute instrument?

a. Ammeter
b. Volt meter
c. Energy meter
d. Tangent galvanometer

567 Which force produces movement of pointer in an indicating instrument?
a. Damping force
b. Deflecting force
c. Repulsion force
d. Controlling force

568 What is the function of integrating instrument?
a. Displays the quantity
b. Indicates the quantity
c. Registers the quantity
d. Measures the quantity

569 Which position an instrument using gravity control reads accurately?
a. Any position
b. Vertical position
c. Inclined position
d. Horizontal position

570 Which quantity is measured by an electro-dynamo type instrument?
a. Power
b. Current
c. Voltage
d. Resistance

571 How to achieve maximum accuracy in measurement using analog instrument?
a. Keep low input impedance
b. Keep high input impedance
c. Use short connecting leads
d. Provide correct damping system

572 Calculate the value of shunt resistance required to measure 10 mA with one mA meter?
a. 3 Ω
b. 30 Ω
c. 0.3 Ω
d. 300 Ω

573 Which type of cable is used for underground service connections?
a. Low tension 3 ¼ core cable
b. Low tension 3 ½ core cable
c. Low tension 2 ¼ core cable
d. Low tension 2 ½ core cable

574 What is the formula to calculate the number of poles required in LT line distribution?
a. Length / Span + 1
b. Length / Span + 10
c. Span / Length + 1
d. Span / Length + 10

575 What should be the height of the 'Roof Pole'?
a. Less than 5m
b. Less than 3m
c. More than 3m
d. More than 10m

576 What is the multiplication factor used for the determination of maximum current carrying capacity of an 11 kV line?
a. 0.88
b. 0.95
c. 0.9
d. 0.8

577 What should be the minimum clearance for laying power cables near communication lines?
a. 0.2 m horizontally and vertically
b. 0.6 m horizontally and vertically
c. 1 m horizontally and vertically
d. 1.5 m horizontally and vertically

578 Which test(s) is / are conducted after completion of erection of 11 kV line but before energisation of lines?
a. Conductor continuity tests
b. Earth resistance tests
c. Insulation resistance tests
d. Both (a) & (c)
e. All of these

579 What should be the minimum insulation resistance of an 11 kV line when tested with a 1000 v Megger?
a. 10 kV
b. 50 kV
c. 33 kV

d. 120 kV

580 What is the empirical formula employed for the determination of spacing of conductors in case of aluminium conductors?
a. √S + V / 100
b. √S + 120 / V
c. √S + V / 150
d. √S + V / 1 kV

581 What is the angle between the pole and stay?
a. 30 °
b. 45 °
c. 60 °
d. 10 °

582 What should be the spacing between the two conductors if the working voltage is 11 kV?
a. 76 mm
b. 101 mm
c. 190 mm
d. 250 mm

583 What are the minimum cross sections of conductors that are used for power wiring?
a. 2.5 $mm^2$and 1.25 $mm^2$for aluminium and copper conductors respectively.
b. 1.25 $mm^2$and 2.5 $mm^2$for aluminium and copper conductors respectively.
c. 1.5 $mm^2$and 1.25 $mm^2$for aluminium and copper conductors respectively.
d. 2.5 $mm^2$and 2.25 $mm^2$for aluminium and copper conductors respectively.

584 How many earth connections are required for the motor frame as per the IE rule 61?
a. One
b. Two separate and distinct
c. Three separate and distinct
d. All of these
e. None of these

585 What is the input current of a 2 hp single phase motor, 240 V at 70 % efficiency and 0.8 power factor?
a. 6.95 A
b. 10.95 A
c. 13.52 A
d. 17.68 A

586 Which starter is used for slip ring induction motors of high ratings?
a. DOL starter
b. Rotor resistance starter
c. Autotransformer starter
d. All of these
e. None of these

587 What is the size of the cable made up of copper conductors used for a 10 hp 500 V DC motor?
a. 7 / 0.915 mm
b. 1 / 2.8 mm
c. 3 / 0.915 mm
d. Both (b) & (c)
e. All of these

588 What will be the utilization factor for an indirect lighting scheme?
a. 0.25 – 0.5
b. 0.5 – 0.75
c. 0.1 – 0.25
d. 0.75 – 0.99

589 Which method is used for the lighting calculations?
a. Watts per square meter method
b. Lumen or light flux method
c. Point to point method
d. All of these
e. None of these

590 What is the normal life of a fluorescent lamp?
a. 2000 hours
b. 3500 hours
c. 7500 hours
d. 10000 hours

591 How is the ballast resistance connected with the choke?
a. Parallel
b. Series
c. Can be connected in either way
d. Both (a) & (b)
e. None of these

592 Which lamp is used in the outdoor illumination of buildings and airport runway?
a. Halogen lamp

b. Gaseous discharge lamp
c. Sodium vapour lamp
d. All of these

593 What will be the maximum leakage current, if a domestic installation uses 20 points of 40 watt lamps and 5 fans of 100 watts each? Use voltage = 240 V
a. 0.002 A
b. 0.0011 A
c. 0.003 A
d. 0.005 A

594 Which among these tests are to be conducted on wiring installations?
a. Testing of polarity of non linked single pole switches
b. Testing of earth continuity path
c. Testing of earth resistance
d. All of these
e. None of these

595 If the measured insulation value is more than unity what value should be taken as the maximum working value?
a. 0.75 MΩ
b. 1 MΩ
c. 0.5 MΩ
d. 1 Ω

596 What is the reason for excess reading of the energy meter?
a. Defective wiring
b. Meter defects
c. Over voltage
d. Both (a) & (b)
e. All of these

597 What should be the insulation resistance in case of PVC wires?
a. 12.5 MΩ / number of outlet
b. 82.5 MΩ / number of outlet
c. 2.5 MΩ / number of outlet
d. 10.5 MΩ / number of outlet

598 What is the amount of charcoal and salt needed for GI Pipe earthing?
a. Charcoal 5 kg, salt 8 kg
b. Charcoal 10 kg, salt 8 kg
c. Charcoal 10 kg, salt 10 kg
d. Charcoal 5 kg, salt 5 kg

599 What is the specification of GI earth plate?
a. 60 cm * 60 cm * 3 mm
b. 60 cm * 60 cm * 6 mm
c. 60 cm * 60 cm * 4 mm
d. 60 cm * 60 cm * 5 mm

600 Which IE rule is applicable to service mains?
a. Rule 30
b. Rule 33
c. Rule 77
d. Both (a) & (b)
e. All of these

601 Which among these is a demerit of underground service mains?
a. Ugly appearance
b. Frequent fault occurrence
c. Costly
d. All of these
e. None of these

602 For what range is the underground service lines used?
a. Distance more than 25 m
b. Distance more than 100 m
c. Distance less than 1 km
d. Distance more than 1 km

603 Which among these fuse is very fast in operation?
a. Semiconductor fuses
b. High rupturing capacity
c. Cartridge type
d. Kit Kat type

604 What is / are the various types of fuse?
a. Kit Kat type
b. Cartridge type
c. Round type
d. Both (a) & (c)
e. All of these

605 What are the types of conduits available?
a. PVC conduit
b. Flexible conduit
c. Heavy gauge steel screwed conduit
d. All of these
e. None of these

606 What is the maximum voltage that XLPE cables can withstand?
a. 65 ° C
b. 80 ° C
c. 110 ° C
d. 130 ° C

607 Which insulating material is used for low voltage cables?
a. Impregnated paper
b. Rubber
c. Silk and cotton
d. Vulcanized Indian rubber

608 What does section 44 refer to?
a. Penalty for interference with meters
b. Penalty for illegal transmission or use of energy
c. Penalty for maliciously wasting energy
d. Theft of energy

609 Which section in the IE Act deals with the 'theft of energy'?
a. Section 39
b. Section 40
c. Section 43
d. Section 44

610 Which rule deals with the supply to X- rays and high frequency installations?
a. Rule 30
b. Rule 39
c. Rule 73
d. Rule 51

611 Which state in India does not follow IE (Indian Electricity rules)?
a. Sikkim
b. Jammu Kashmir
c. Nagaland
d. Mizoram

612 What percentage is the stock incidental charge?
a. 10 %
b. 5 %
c. 12 %
d. 2 %

613 What should be the minimum depth of trench from the ground level for cables carrying a voltage between 3.3 kV and 11 kV?
a. 0.75 m plus radius of complete cable
b. 0.45 m plus radius of complete cable
c. 1.0 m plus radius of complete cable
d. All of these

614 Which type of stress is developed in a belted type cable construction used for voltage above 22 kV?
a. Radial stress
b. Tangential stress
c. Electrostatic stress
d. Both (a) and (b)
e. All of these

615 What is the dielectric constant of impregnated paper insulation?
a. 3.5
b. 2.5
c. 4.3
d. 3.8

616 Which among these is the main requirement of the insulating materials? i. Non inflammable ii. High permittivity iii. High dielectric strength
a. i and ii
b. i and iii
c. ii and iii
d. i, ii and iii

617 Which type of cable does not require bedding?
a. Paper insulated lead covered cables
b. PVC cables
c. Both (a) and (b)
d. None of these

618 Steel rail poles of height 13 meters are used for transmission purpose of _____voltage.
a. 33 kV
b. 11 kV
c. 22 kV
d. Both (a) & (b)
e. All of these

619 To prevent the decaying owing to snow and rain, the wooden poles

are protected by _____ cap at the top.
a. Aluminium
b. Zinc
c. Cement
d. All of these
e. None of these

620 For what voltage is the H type of poles used?
a. 22 kV
b. 132 kV
c. 11 kV
d. All of these
e. None of these

621 What is the maximum span upto which the wooden poles can be used?
a. 20 m
b. 50 m
c. 60 m
d. 100 m

622 Which among these is a part of distribution system?
a. Feeders
b. Distributors
c. Service mains
d. All of these
e. None of these

623 What is the factor of safety used for current ratings in a power installation?
a. 1
b. 1.5
c. 1.75
d. 2

624 What is the maximum length of the flexible conduit in motor installation?
a. Less than 1.25 m
b. Less than 2.25 m
c. Less than 3.5 m
d. Can exceed not more than 5 m.

625 Which statement is true, with respect to the motor installation?
a. Wood work is used for mounting switchgears.
b. All equipments used in power wiring shall be of iron cla
c. Looping of conductors is usually mad
d. The length of flexible conduit is more than 3 m.

626 What is the maximum load that is permitted in a power circuit?
a. 5000 watts
b. 3000 watts
c. 2000 watts
d. 10000 watts

627 How many outlets are permitted in a power circuit?
a. 10 points
b. 5 points
c. 2 points
d. 1 point

628 Beyond what temperature does the gas vaporize and blackens the lamp in a gas filled lamp?
a. 550 ° C
b. 2000 ° C
c. 1000 ° C
d. 3000 ° C

629 A black body when heated to _____emits the maximum energy in the visible spectrum rang
a. 5000 ° C
b. 3250 ° C
c. 6250 ° C
d. 8000 ° C

630 Which among these is a type of batten wiring?
a. Using metal sheathed wiring
b. Using TRS or PVC wires
c. Both (a) and (b)
d. None of these

631 What is the maximum distance between the two successive cleats?
a. 0.25 m
b. 0.6 m
c. 0.9m
d. 1.25 m

632 Which among these is a type of internal wiring?
a. Cleat wiring
b. Conduit wiring
c. CTS wiring
d. Both (a) & (b)
e. All of these

633 At what temperature value is the insulation resistance corrected if it is measured to be different?
a. 30 ° C
b. 25 ° C
c. 22 ° C
d. 15 ° C

634 _____should be provided as the working space around the main switchboard according to IE rule 51.
a. 0.914 m
b. 0.523 m
c. 0.638 m
d. 0.814 m

635 The leakage current must not be more than_____of maximum supply current
a. 1 / 1000
b. 1 / 100
c. 1 / 5000
d. 1 / 500

636 Branch circuit must not feed more than_____points.
a. 12
b. 5
c. 10
d. 8

637 Which set of rules are to be verified on completion of wiring on any new installation?
a. IE rules, 1950
b. IE rules, 1956
c. IE rules, 1960
d. None of these

638 What is the diameter of the GI pipe through which the earth wire needs to be taken out?
a. 13 mm diameter
b. 15 mm diameter
c. 19 mm diameter
d. 6 mm diameter

639 What should be the value of earthing resistance for large power stations?
a. 1 Ω
b. 0.5 Ω
c. 2 Ω
d. 5 Ω

640 What type of earthing is used by transmission lines?
a. Plate earthing
b. Rod earthing
c. Strip earthing
d. Both (a) & (c)
e. All of these

641 What is the dimension of the copper strips used for the strip earthing?
a. 25 mm * 4 mm
b. 25 mm * 3 mm
c. 30 mm * 4 mm
d. 30 mm * 3 mm

642 Which type of earthing is also called as ‘fire earthing’?
a. Plate earthing
b. Rod earthing
c. Strip earthing
d. All of these

643 Which material is used for wiring continuous bus bar?
a. Aluminium
b. Copper
c. Both (a) and (b)
d. None of these

644 For what voltage levels are the screwed conduit circuits used?
a. Less than 250 V
b. For voltages between 250 V–600V
c. For voltages above 600 V
d. None of these

645 Which among these is a method of wiring?
a. Joint box
b. Tee system
c. Loop in system
d. Only a and c

e. All of these

646 What is the maximum load that can be connected in a circuit connecting only lighting points?
a. 500 watts
b. 750 watts
c. 800 watts
d. 1000 watts

647 What is the maximum number of lighting points that can be connected in a circuit?
a. 5
b. 10
c. 8
d. 12

648 What is meant by petty purchase?
a. An item purchased from market by purchase assistant with proper formal order.
b. An item purchased from market by purchase assistant without proper formal order.
c. A single tendering purchase
d. None of these

649 Which among the following mode of tendering is used by purchase department? i. Open tendering, ii. Limited tender, iii. Spot tendering, iv. Global tendering. Proprietary tender
a. i, iii and iv
b. i, ii, iii and v
c. i and iv only
d. i, ii, iii, iv and v

650 What is meant by contingencies?
a. The list of required components are included in this category
b. The list of vague and unforeseen items is included in this category
c. The list of components along with their discounted price is included in this category
d. Both (a) and (c)
e. None of these

651 Which among the following information is required for a good estimation? i. Availability of products, ii. Sources of production, vendor selection, iii. New products and their quality, iv. Prices and the discounts provided for each product
a. i and ii
b. ii, iii and iv
c. i, ii, iii and iv
d. only iv

652 What is an electrical schedule?
a. A list or a plan of a building providing information of number of points in each room.
b. The list of all the electrical components required for a particular room
c. The list of electrical components along with their prices'
d. Both (b) and (c)
e. None of these

653 When did The Electricity Act, 2003, come into force?
a. 01 April 2004
b. 01 March 2003
c. 10 June 2003
d. 23 April 2004

654 Which section of The Electricity Act, 2003 deals with the Captive generation?
a. Section 12 of The Electricity Act, 2003
b. Section 9 of The Electricity Act, 2003
c. Section 14 of The Electricity Act, 2003
d. Section 20 of The Electricity Act, 2003

655 Which section of The Electricity Act, 2003 deals with Conditions of license?
a. Section 16 of The Electricity Act, 2003
b. Section 14 of The Electricity Act, 2003
c. Section 13 of The Electricity Act, 2003
d. Section 18 of The Electricity Act, 2003

656 Section 25 of The Electricity Act, 2003deals with_____?
a. National Load Dispatch Centre
b. Inter-State, regional and inter-regional transmission
c. State Transmission Utility and functions.
d. Power to recover charges

657 Vesting of utility in purchaser, is provided in section____of The Electricity Act, 2003
a. Section 24 of The Electricity Act, 2003
b. Section 22 of The Electricity Act, 2003
c. Section 21 of The Electricity Act, 2003
d. Section 23 of The Electricity Act, 2003

658 Section 42 of The Electricity Act, 2003 provides _?
a. Duties of distribution licensee and open access
b. Charges for intervening transmission facilities
c. Power to recover charges
d. Power to require security

659 Which section of The Electricity Act, 2003 deals with National policy on electrification and local distribution in rural areas?
a. Section 7 of The Electricity Act, 2003
b. Section 4 of The Electricity Act, 2003
c. Section 5 of The Electricity Act, 2003
d. Section 9 of The Electricity Act, 2003

660 Section 12 of The Electricity Act, 2003deals with_____?
a. Authorised persons to transmit, supply, etc., electricity
b. Procedure for grant of licence
c. Revocation of licence
d. Other business of transmission licensee

661 Dynamo is used for the conversion of which of the following?
a. High Voltage to Low Voltage
b. Electrical energy to Mechanical energy
c. Mechanical energy to Electrical energy
d. Low Voltage to High Voltage

662 The device which is used for converting chemical energy to electrical energy?
a. Battery
b. Motor
c. Generator
d. None of these

663 In 3 pin electrical plug, the longest pin is connected to which of the given options?
a. Neutral terminal
b. Ground terminal
c. Live terminal
d. None of these

664 In electric apparatus, 'earth' is used for which of the given purposes?
a. For safety purposes
b. As a Fuse
c. To reduce expenditure
d. To reduce current

665 Which of the given is the best conductor of electricity?
a. Copper
b. Gold
c. Aluminum
d. Silver

666 When the electric current does not flow between two bodies, it means they have the same?
a. Charge
b. Resistivity
c. Capacity
d. Potential

667 What is the temperature of the filament of the lighted electric bulb?
a. $100^0C – 200^0C$
b. $2000^0C – 2500^0C$
c. $500^0C – 1000^0C$
d. $1000^0C – 1500^0C$

668 The filament of an electric bulb is made up of which of the given materials?
a. Tungsten
b. Nichrome
c. Lead
d. Aluminum

669 We often use a fuse in the main electrical supply for safety, why?
a. Due to its low resistance and high melting point
b. Due to its low resistance and low melting point
c. Due to its high resistance and low melting point
d. Due to its high resistance and high melting point

670 The filament of a halogen lamp is made up of which of the given options?
a. Sodium and Iodine
b. Tungsten and Iodine
c. Tungsten and Bromine
d. Tungsten and Sodium

671 Which of the given gases filled in tube lights?
a. Mercury vapor and Neon
b. Mercury vapor and Argon
c. Sodium vapor and Neon
d. Sodium vapor and Argon

672 What is the full form of C.F.L?
a. Compact Fluorescent Lamp
b. Centrally Fixed lamp
c. Chemical Fluorescent Lamp
d. Condensed Fluorescent Lamp

673 Why we preferred CFLs over electric bulbs?
a. CFLs are cost-effective
b. CFLs have a long life
c. CFLs transformed more electric energy into light energy
d. All of the above

674 White light produced in a tube due to?
a. Heating up of copper wire
b. Heating up of filament
c. Acceleration of atoms
d. Oscillation of molecules

675 What color does a neutral wire have in an electric supply?
a. Green
b. White
c. Black
d. Red

676 Domestic electrical supply wiring has what kind of connection?
a. Parallel connection
b. Series connection
c. Both parallel and series connection
d. None of these

677 What is the color of a live wire?
a. White
b. Black
c. Yellow
d. Red

678 A transformer is used for what purpose?
a. To convert AC into DC voltages
b. To convert DC into AC voltages
c. To step up or step down AC voltages
d. To step up DC voltages

679 A mobile charger is?
a. A UPS
b. A step-down transformer
c. An inverter
d. A step-up transformer

680 We often see a choke coil fitted with fluorescent tubes. What is the role of the choke coil?
a. To step up the line voltage
b. To step down the line voltage
c. To reduce the current in a circuit
d. To choke low-frequency current

681 Which of the following elements of electrical engineering cannot be analyzed using Ohm's law?
a. Capacitors
b. Inductors
c. Transistors
d. Resistance

682 What is constant for a charged spherical shell according to basic electrical energy?
a. Electrical potential outside the spherical shell
b. Electrical potential inside the spherical shell
c. Electrical field outside the spherical shell
d. Electrical field inside the spherical shell

683 Where does electro-static shielding occur in a charged spherical shell?
a. When electrical potential outside spherical shell is zero
b. When electrical potential inside the spherical shell is zero
c. When electrical field outside the spherical shell
d. Electrical field inside the spherical shell

684 Which of the following is a correct representation of peak value in an AC Circuit?
a. RMS value/Peak factor
b. RMS value*Form factor
c. RMS value/Form factor
d. RMS value*Peak factor

685 Which of the following according to fundamentals of electrical energy is correct about alternating current?
a. Frequency is zero
b. Magnitude changes with time
c. Can be transported to larger distances with less loss in power
d. Flows in both directions

686 How many cycles will an AC signal make in 2 seconds if its frequency is 100 Hz?
a. 50
b. 100
c. 150
d. 200

687 What will be the direction of the drift velocity of electrons change with respect to the electric field?
a. same as that of electric field
b. opposite to that of electric field
c. perpendicular to that of the electric field in a positive direction
d. perpendicular to that of the electric field in a negative direction

688 What will be the current density of metal if a current of 30A is passed through a cross-sectional area of $0.5m^2$?
a. 7.5 A/m^2
b. 15 A/m^2
c. 60 A/m^2
d. 120 A/m^2

689 Which of the following is correct about the power consumed by R_1 and R_2 connected in series if the value of R_1 is greater than R_2?
a. R_1 will consume more power
b. R_2 will consume more power
c. R_1 and R_2 will consume the same power
d. The relationship between the power consumed cannot be established

690 What is zero for a charged spherical shell?
a. Electrical potential outside the spherical shell
b. Electrical potential inside the spherical shell
c. Electrical field outside the spherical shell
d. Electrical field inside the spherical shell

691 What kind of quantity is an Electric potential?
a. Vector quantity
b. Tensor quantity
c. Scalar quantity
d. Dimensionless quantity

692 What do crowded lines of force indicate?
a. Strong electric field
b. Weak electric field
c. Strong electric potential
d. Weak electric potential

693 What is the direction of the electric field at a point?
a. Along the line perpendicular to the electric field
b. Along the line tangent to the electric field
c. Electric field has no direction
d. Electric field has a random direction

694 What is the magnitude of mutually induced e.m.f., E_2 in a transformer?
a. directly proportional to rate of change of flux and number of secondary turns
b. inversely proportional to rate of change of flux and number of secondary turns
c. proportional to rate of change of flux and inversely proportional to number of secondary turns
d. inversely proportional to the rate of change of flux and proportional to number of secondary turns

695 Which of the following will happen in a transformer when the number of secondary turns is less than the number of primary turns?
a. The voltage gets stepped up
b. The voltage gets stepped down
c. The power gets stepped up
d. The power gets stepped down

696 What is the number of primary turns in a 200/1000 V transformer if the e.m.f. per turn is 10V?
a. 5
b. 10
c. 20
d. 40

697 Which of the following is a correct representation of average value in an AC Circuit?
a. RMS value/Form factor
b. RMS value*Form factor
c. RMS value/Peak factor
d. RMS value*Peak factor

698 Who defined electric current and devised a method to measure current?
a. Michael Faraday
b. Andre-Marie Ampere
c. Nikola Tesla
d. Alessandro Antonio Volta

699 How many electrons will constitute 2 Coulombs of electric charge?
a. $6.24 * 10^{18}$ electrons
b. $12.48 * 10^{18}$ electrons
c. $1.602 * 10^{19}$ electrons
d. $3.204 * 10^{19}$ electrons

700 Which of the following is correct about direct current?
a. Magnitude is constant
b. Frequency is zero
c. Can be transported to larger distances with less loss in power
d. Flows in one direction

701 Who witnessed the effect of magnetism for the first time?
a. Hans Christian Orsted
b. Alexander Graham Bell
c. Michael Faraday
d. Gustav Robert Kirchhoff

702 Which of the following according is correct about electrical conductivity?
a. It is the ratio of current density to the electric field
b. It is the product of current density and electric field
c. It is the ratio of the electric field to current density
d. It is the reciprocal of the product of current density and electric field

703 What is responsible for the current to flow?
a. Protons
b. Electrons
c. Nucleus
d. Protons and Electrons

704 Which of the following according to KCL must be zero?

a. Algebraic sum of currents in closed-loop
b. Algebraic sum of power in closed-loop
c. Algebraic sum of currents entering and leaving a junction
d. Algebraic sum of voltages across the input and output

705 How many directions can the electric field at a point have?
a. Zero
b. One
c. Two
d. Many

706 Which of the following will happen in a transformer when the number of secondary turns is greater than the number of primary turns?
a. The voltage gets stepped up
b. The voltage gets stepped down
c. The power gets stepped up
d. The power gets stepped down

707 Which of the following is correct about the voltage transformation ratio in electrical engineering?
a. Ratio of number of primary turns to the number of secondary turns
b. Ratio of induced e.m.f. in secondary to induced e.m.f. in primary
c. Ratio of secondary current to the primary current
d. Ratio of power in primary to power in secondary

708 Which of the following according to the fundamentals of electrical engineering is correct about the induced e.m.f. in primary of transformer?
a. It is the ratio of primary turns to e.m.f. induced per turn
b. It is the product of primary turns and e.m.f. induced per turn
c. It is the ratio of secondary turns to e.m.f. induced per turn
d. It is the product of secondary turns and e.m.f. induced per turn

709 Which of the following current is drawn by the primary circuit of an ideal transformer when the secondary is open?
a. Secondary current
b. Leakage current
c. Magnetizing current
d. Working on current

710 What does positive power in an electrical element indicate?
a. Element is absorbing power
b. Element is supplying power
c. Element may absorb or supply power
d. Element is neither absorbing nor supplying power

711 How does induce e.m.f. in DC motor react to supply voltage?
a. It will aid the supply voltage
b. It will be double the supply voltage
c. It will oppose the supply voltage
d. It will be half of the supply voltage

712 Which of the following type of circuits in electrical engineering cannot be analyzed using Ohm's law?
a. Unilateral
b. Bilateral
c. Linear
d. Conductors

713 Which of the following according to KVL must be zero?
a. Algebraic sum of currents in closed loop
b. Algebraic sum of power in closed loop
c. Algebraic sum of losses in closed loop
d. Algebraic sum of voltages in closed loop

714 Transformer works on _____ principle.
a. Gauss's law
b. Fleming's right-hand rule

c. Faraday's law of electromagnetic induction
d. Fleming's left-hand rule

715 A step-up transformer has _____ number of turns on primary winding and_____number of turns on secondary winding.
a. Less, More
b. More, More
c. More, Less
d. Less, Less

716 A step-down transformer has _____ number of turns on primary winding and_____number of turns on secondary winding.
a. Less, More
b. More, Less
c. More, More
d. Less, Less

717 A transformer is a _____ device.
a. Static
b. Dynamic
c. Static and Dynamic
d. None of the above

718 In a current transformer _____ winding is closed.
a. Primary
b. Secondary
c. Both (a) & (b)
d. None of the above

719 In a transformer the relation between the input frequency and the output voltage on secondary winding is_____.
a. Same
b. Increases
c. Decreases
d. Increases and decreases with time

720 The efficiency of a power transformer is_____at full load.
a. Same
b. Minimum
c. Maximum
d. Fluctuates

721 Copper losses in a transformer are measured using_____.
a. Closed circuit
b. Open circuit
c. Both (a) & (b)
d. None of the above.

722 Transformer core lamination is made up of_____.
a. Silicon steel
b. Cast steel
c. Cast iron
d. Aluminium

723 What is the functionality of a breather in a transformer?
a. It absorbs the moisture of air during breathing
b. Passes cold air to the transformer
c. It is the transformer oil filter
d. Both (a) & (b)

724 What is basic functionality of a transformer?
a. Voltage to current converter
b. Current to voltage converter
c. Frequency converter
d. None of the above

725 What are the two types of Instrument transformer?
a. Voltage transformer
b. Current transformer
c. Potential transformer
d. Both (b) and (c)

726 The core of a transformer is laminated for_____reason
a. Minimize hysteresis loss
b. Minimize eddy & hysteresis current loss
c. Lowers eddy current loss
d. Copper loss

727 The voltage regulation in a transformer is said to be negative when the load power factor is _____.
a. Ideal
b. Lags
c. Leads
d. Infinity

728 What is the need of performing a short circuit test in a transformer?
a. To find copper loss
b. To find core loss
c. To find insulation resistance
d. To find complete loss

729 Which losses in a transformer is zero at full load?
a. Core loss
b. Eddy current loss
c. Copper loss
d. Friction loss

730 A transformer has_____resistance between its primary and secondary winding.
a. Infinity
b. 10 ohm
c. 100 ohm
d. 100 Kohm

731 The current rating of a transformer is expressed as_____.
a. Kilowatts
b. KVAR
c. Kilo-Volt-Ampere
d. Ampere

732 What is the purpose of oil in an oil-filled transformer?
a. Insulator
b. Resistance
c. Cooling
d. Both (a) & (c)

733 Which test is used to determine iron losses in a transformer?
a. SC test
b. OC test
c. Both (a) and (b)
d. None of the above

734 Which of the following component is not related to the transformer?
a. Breather
b. Conservator
c. Buchholz relay
d. Exciter

735 Which component of the transformer causes noise?
a. Vibration due to mechanical motion
b. Fan that is used for cooling purpose
c. Iron core which contains magnetostriction
d. All the above

736 The relation between primary and secondary flux in a transformer is _____.
a. Primary is greater than the secondary flux
b. Primary flux is less than the secondary flux
c. Primary flux and secondary flux are equal
d. None of the above

737 If the direct current is supplied to a transformer, what happens to a transformer?
a. Transformer operates normally
b. Transformer operates with greater efficiency
c. Transformer operates with low efficiency
d. Transformer stops working due to damage that occurred

738 How much percent of friction loss is present in a transformer?
a. 1%
b. 3%
c. 0%
d. 5%

739 Which transformer has primary and secondary winding coupled electrically and magnetically?
a. Power transformer
b. Current transformer
c. Potential transformer
d. Auto transformer

740 What is the purpose of stones in a transformer?
a. To provide Insulation
b. To safeguard from fire accident if there was an oil leakage in a transformer
c. To prevent the growth of weeds and plant

d. All the above

741 What is the reason behind the cruciform shape of a transformer?
a. Decrease in core loss
b. Decrease in the reluctance of the core
c. Decrease in copper winding
d. All the above

742 Which losses are neglected when a transformer undergoes a short circuit test?
a. Copper losses
b. Core loss
c. Eddy current loss
d. Hysteresis loss

743 The volatility and viscosity values of an oil transformer should be _____.
a. High, Low
b. Low, High
c. Low, Low
d. High, High

744 On which parameter does the core size of a transformer depends?
a. Cores area and frequency
b. Only core area
c. Only frequency
d. None of the above

745 Formula to calculate the number of turns ratio in a transformer is given as_.
a. Number of turns of secondary / Number of turns of the primary
b. Number of turns of primary / Number of turns of secondary
c. Number of turns of secondary alone
d. Number of turns of primary alone

746 Formula for primary voltage of a transformer is_____.
a. Primary voltage (V_p)*turns ratio (n)
b. Secondary voltage (V_s)* turns ratio (n)
c. Primary voltage(V_p) * efficiency
d. Primary voltage(V_p) * secondary voltage(V_s)

747 Formula for secondary voltage of a transformer is_____.
a. Primary voltage (V_p)/turns ratio (n)
b. Secondary voltage (V_s)* turns ratio (n)
c. Primary voltage(V_p) * efficiency
d. Primary voltage(V_p) * secondary voltage(V_s)

748 What is a dual voltage transformer?
a. A transformer with a single primary and single secondary windings
b. A transformer with two primaries and two secondary windings
c. A transformer with single primary and dual secondary windings
d. None of the above

749 Which of the following is the advantage of a transformer?
a. It is a stationary device
b. It provides high efficiency
c. No starting time is required
d. All the above

750 Which of the following is the disadvantage of a transformer?
a. It is a stationary device
b. It is a bulky device
c. Size and voltage
d. Both (b) and (c)

751 What are the types of cores in a transformer?
a. Core Type
b. Shell type
c. Ideal type
d. Both (a) and (b)

752 Which test is performed to find the temperature of a transformer?
a. Open load test
b. Close load test
c. Sumpner's test
d. None of the above

753 The maximum efficiency of a transformer can be observed at _____condition.
a. Maximum Iron loss
b. Minimum core loss
c. Copper loss and iron loss are equal

d. Hysteresis loss

754 What is the maximum range the natural oil cooling can be used in a transformer?
a. 50kVA
b. 3000kVA
c. 500 kVA
d. 250kVA

755 What is the equivalence resistance relationship between the primary and secondary winding of a transformer?
a. R_2/K
b. R_2/K^2
c. R_2
d. R_1

756 On which side of transformer tapings are provided in general?
a. Secondary side
b. Right side
c. Low voltage side
d. Primary side

757 Which substance is used in the transformer breather component?
a. Silica gel
b. Sodium
c. Silica sand
d. Potassium

758 What is the value of inductance in an ideal transformer?
a. 0
b. Infinity
c. 100%
d. 50%

759 The core of a transformer is constructed using_____.
a. Wood
b. Zinc
c. Steel
d. Silicon steel

760 What is the purpose of a conservator in a transformer?
a. Protects against short circuit
b. Prevents moisture entry
c. Controls the transformer oil which expands and contracts based on environmental temperature
d. None of the above

761 The lamination thickness of a transformer is_____.
a. 0.4 mm to 0.5 mm
b. 0.1 mm to 0.2 mm
c. 0.5 mm to 5 mm
d. 6 mm to 8 mm

762 The oil used in a transformer must be free from_____.
a. Sand
b. Odour
c. Moister
d. Sludge

763 On which transformer can we install the Buchholz relay?
a. Power transformer
b. Mechanical transformer
c. Oil cooled transformer
d. Welding transformer

764 Why do harmonics occur in a transformer?
a. Short circuit
b. Break down
c. Less insulation
d. core getting saturated

765 What is the efficiency of the distribution transformer?
a. 100%
b. 50%
c. 10%
d. 99%

766 A transformer connected in star fashion works at_____condition.
a. No load
b. Full load
c. Balanced load and unbalanced load
d. Balanced load

767 Buchholz relays warn about_____.
a. Electrical faults that occur within the transformer
b. Electrical faults that occur in the surroundings of a transformer

c. Both (a) and (b)
d. None of the above

768 Why transformers magnetized current is small?
a. Due to little air gap
b. Due to flux leakage
c. Due to lamination
d. None of the above

769 Which parameter in a transformer remains the same?
a. Voltage
b. Frequency
c. Resistance
d. All the above

770 On which side helical coil in a transformer is placed?
a. On less voltage side of a high kVA transformer
b. Power transformer
c. Voltage transformer
d. Ideal transformer

771 Which test is least done on a transformer?
a. Radio interface test
b. OC test
c. SC test
d. None of the above

772 What happens if harmonics occur in a transformer?
a. Core losses increases
b. I^2R losses increases
c. Both (a) and (b)
d. None of the above

773 Which type of core is used in a transformer with high frequency?
a. Cu core
b. Cast Fe core
c. Air core
d. Alluminium core

774 The e.m.f equation of a transformer has_____value of flux.
a. Maximum
b. Minimum
c. Equal
d. Zero

775 The purpose of Silicon steel in a transformer is to_____.
a. Increase eddy current loss
b. Reduce hysteresis loss
c. Maintain eddy current losses
d. None of the above

776 Less cross-sectional area in a transformer can be observed on _____.
a. Primary side
b. High voltage side
c. Secondary side
d. None of the above

777 At what conditions does power transformer has maximum efficiency?
a. Full load
b. No load
c. Half load
d. None of the above

778 What is the advantage of autotransformer over dual transformer?
a. Low power
b. Less winding materials
c. Half load
d. None of the above

779 SI units of E.M.F._____.
a. Volts
b. Amperes
c. Hertz
d. Centimeters

780 SI unit of power is_____.
a. Watt
b. Hz
c. Centimeters
d. Joule

781 Units of electric field_____.
a. Volts
b. Amperes
c. Volts / Meter
d. Centimeters

782 What is Np in a transformer?
a. Number of turns on the primary winding

b. Number of turns on the secondary winding
c. Number of turns on both primary and secondary winding
d. None of the above

783 What is Ns in a transformer?
a. Number of turns on the primary winding
b. Number of turns on the secondary winding
c. Number of turns on both primary and secondary winding
d. None of the above

784 _____.
a. Volts
b. Amperes
c. Amp / Meter
d. Centimeters

785 SI unit of Electrical Flux_____.
a. Volt Meter
b. Amperes
c. Amp / Meter
d. Centimeter

786 Faradays Law equation
a. E = N * (dϕ / dt)
b. E = N * dϕ
c. E = N *dt
d. N * dϕ = dt

787 Transformers are classified based on _____.
a. Core used
b. Voltage level
c. Number of windings
d. All the above

788 Which of the following is the property of an ideal transformer?
a. Absence of losses
b. Absence of magnetic leakage
c. 10-ohm resistance
d. Both a and b

789 When a transformer is operated at rated voltage and low frequency what happens?
a. There will be an increase in core flux
b. Increase in resistance value
c. Increase in current value
d. None of the above

790 At what condition does an ideal transformer gives maximum efficiency?
a. Copper loss = 0
b. Copper loss = infinity
c. Copper loss = iron loss
d. Copper loss = 99%

791 What happens to iron loss in a transformer, if there is an increase in input frequency?
a. 0
b. Infinity
c. Increases
d. Decreases

792 If the negative voltage obtained from a load of a transformer, what does it mean?
a. Capacitive type load
b. Inductive type load
c. Resistive type load
d. None of the above

793 Transformer with a low power factor is used to measure _____ losses.
a. Iron losses
b. Steel losses
c. Eddy current losses
d. None of the above

794 Which material is used between the transformer's laminations?
a. Mica strip
b. Varnish
c. Oil
d. Paper

795 A sandwich-type winding is used in which phase shell type transformer?
a. Single phase
b. Three-phase
c. Two-phase
d. Zero phase

796 Why the OC test is performed on the transformer?
a. To find hysteresis loss

b. To find efficiency
c. To find resistance
d. To find core loss

797 Why the SC test is performed on the transformer?
a. To find copper loss
b. To find efficiency
c. To find resistance
d. To find core loss

798 A single-phase transformer operating parallel should maintain _____.
a. Equal polarity
b. Opposite polarity
c. Equal efficiency
d. None of the above

799 Transformer oil should have _____ viscosity.
a. Low
b. Equal
c. High
d. zero

800 Which winding of the current transformer is short-circuited?
a. primary
b. secondary
c. both (a) and (b)
d. none of the above

801 Natural air cooling property in a transformer is restricted _____ limit.
a. 0.5 MVA
b. 1 MVA
c. Up to 5 MVA
d. 5 MVA

802 Which type of transformer has less magnetic leakage?
a. Core type
b. Shell type
c. Both (a) and (b)
d. None of the above

803 A transformer operating at what condition it gives maximum efficiency at a unity power factor?
a. Constant load current
b. Constant load voltage
c. Constant frequency
d. Zero

804 Which material is used to withstand high temperatures in a transformer?
a. Silicon
b. Steel
c. Mica
d. Glass

805 Which component is visible from outside a transformer?
a. Windings
b. Core
c. Wires
d. Brushes

806 What is the noise produced by a transformer called?
a. Hum
b. Zoom
c. Buzz
d. Buzz

807 Why does hum occurs in the transformer?
a. Due to full load
b. Due to no load
c. Due to magnetostriction
d. Due to the vibrations

808 What happens to transformer windings if operated continuously?
a. Temperature increases
b. Temperature decreases
c. Resistance increases
d. None of the above

809 Which part of the transformer is damaged by overheating?
a. Core
b. Frame
c. Winding insulation
d. Brushes

810 What is the relationship between minimum voltage regulation and the power factor of the load?
a. Lags
b. Leads
c. Zero

d. Infinity

811 _____the most commonly used connections for large low voltage transformers.
a. V-connection
b. Star-star connection
c. Delta-delta connection
d. None of the above

812 Which is the most familiar application of zig -zag transformer?
a. Reducing harmonics
b. Converting single phase to two-phase
c. Ground reference on an ungrounded system
d. None of the above

813 Breather is provided in a transformer to
a. Absorb moisture of air during breathing
b. provide cold air in the transformer
c. The filter of transformer oil
d. None of above

814 Which type of winding is used in the three-phase shell type transformer?
a. Square type
b. Circular type
c. Sandwich type
d. Cylindrical type

815 A transformer_____.
a. Steps up or down dc voltages
b. Changes ac to dc
c. Steps up or down ac voltages
d. Changes dc to ac

816 Which of the following has a differential relay comparator used for the protection of three-phase transformers?
a. Two comparator
b. Three comparator
c. Four comparator
d. Five comparator

817 The maximum load that a power transformer can carry is limited by its_____.
a. Voltage ratio
b. Dielectric strength of the coil
c. Copper loss
d. Temperature rise

818 Which winding in a transformer has more number of turns?
a. Secondary winding
b. Primary winding
c. High voltage winding
d. Low voltage winding

819 A transformer on no-load is switched on to a source of voltage. It will draw a current,_____.
a. Which is several times the steady-state magnetizing current depending upon the initial state of the residual flux in the transformer core.
b. Which is several times the steady-state magnetizing current depending upon the initial state of the residual flux in the transformer core.
c. Which is same as the steady-state magnetizing current
d. Which is twice the steady-state magnetizing current provided the core has no residual flux

820 When the supply frequency of a transformer increases, the secondary output voltage of the transformer
a. Decreases
b. Increases
c. Constant
d. None of these

821 Which of the following loss in a transformer is zero even at full load?
a. Eddy current loss
b. Core loss
c. Copper loss
d. Friction loss

822 In an Auto Transformer, The Primary and Secondary are_____coupled.
a. Electrically only

b. Magnetically only
c. Both electrically & magnetically
d. None of the above

823 Stones are provided in the substation to_____.
a. To provide insulation
b. To avoid Fire accident during leakage of transformer oil
c. To avoid growing of plants and weed
d. All of the above

824 Which of the following losses varies with the load in the transformer?
a. Core loss
b. Copper loss
c. Both core & copper loss
d. None of the above

825 A transformer transform_____.
a. Current
b. Voltage & Current
c. Frequency
d. Voltage

826 What are the two main types of transformers?
a. Core Type
b. Shell Type
c. Both Core Type & Shell Type
d. None of the above

827 Open circuit test in a transformer is used to determine_____.
a. Total loss
b. Iron loss
c. Core loss
d. Copper loss

828 Which of the following losses will be minimum for a single phase no load transformer?
a. Copper losses
b. Hysteresis losses
c. Eddy current losses
d. Mechanical losses

829 In a transformer, the resistance between its primary and secondary is_____.
a. Infinite
b. 100 ohm
c. Zero
d. 1000 ohm

830 Scott connection is used for the conversion of_____.
a. Single-phase to two-phase
b. Single-phase to three-phase
c. Three-phase to single-phase
d. None of the above

831 Which of the following is not a part of transformer?
a. Conservator
b. Breather
c. Exciter
d. Buchholz relay

832 Transformer core are laminated in order to_____.
a. reduce hysteresis loss
b. reduce hysteresis & eddy current loss
c. minimize eddy current loss
d. copper loss

833 The noise of the transformer mainly due to_____.
a. Cooling fan
b. magnetostriction in an iron core
c. Mechanical vibration
d. All of the above

834 An autotransformer can be used as_____.
a. Step up device
b. Step down device
c. Both step up and step down
d. None of the above

835 The angle between two consecutive cores is_____in a three phase transformer.
a. 90 degree
b. 30 degree
c. 120 degree
d. 60 degree

836 Which of the following is the main advantage of autotransformer over a two winding transformer?
a. Reduces hysteresis losses

b. Reduce eddy current losses
c. Copper losses are negligible
d. Saving of copper material

837 Which of the given winding of the transformer has less cross-sectional area?
a. Primary winding
b. Low voltage winding
c. High voltage winding
d. Secondary winding

838 Which winding in a transformer has a greater number of turns?
a. Constant voltage winding
b. Low voltage winding
c. Secondary winding
d. High voltage winding

839 In a transformer, tapings are usually provided in_____.
a. High voltage side
b. Low voltage side
c. Primary side
d. Both (a) and (b)

840 The secondary winding of which of the given transformer is always kept closed?
a. Voltage transformer
b. Current transformer
c. Step-up transformer
d. Power transformer

841 High frequency and impulse currents are measured using:
a. Inductive elements
b. Hall effect devices
c. Faraday effect devices
d. All of these

842 A Tesla coil is a_____.
a. High frequency resonant transformer
b. Low impedance transformer
c. Coreless transformer
d. Cascaded transformer

843 The secondary winding of which of the following transformers is always kept closed?
a. Current transformer
b. Voltage transformer
c. Power transformer
d. Step down transformer

844 Power transformers are designed to have maximum efficiency at_____.
a. Full load
b. 50% load
c. 80% load
d. no load

845 Which of the following is a polar dielectric?
a. Polyethylene
b. Quartz
c. Nylon
d. Teflon

846 If the transformer is working on, no-load is switched on to a specific source of voltage. It will draw a current_____.
a. Same as the steady-state magnetizing current.
b. Once the steady-state magnetizing current provided to the core has huge residual flux.
c. Same as the dynamic magnetizing current.
d. Mostly, the steady-state magnetizing current relying upon the initial state of the residual flux in the transformer core.

847 At city substation, the AC is stepped down to_____.
a. 120 V
b. 130 V
c. 220 V
d. 320 V

848 In a transformer the primary fluxes is_____secondary flux.
a. Greater than
b. Smaller than
c. Either (a) & (b)
d. Equal to

849 What would happen if a transformer is connected to a DC supply?
a. No effect

b. Operate with high efficiency
c. Damage the transformer
d. Operate with low frequency

850 Lamination of the transformer core is made up of_____.
a. Aluminum
b. Iron
c. Steel
d. Silicon steel

851 The Ward- Leonard system is used for controlling the speed of_____.
a. Three-phase AC motors
b. DC motors
c. Universal motors
d. Induction motors

852 The short circuit test in a transformer is performed on_____.
a. Low voltage side
b. High voltage side
c. Either (a) & (b)
d. Both (a) & (b)

853 A transformer can have zero voltage regulation closer to zero_____.
a. On full load
b. On overload
c. On leading power factor
d. On zero power factor

854 The purpose of a breather in a transformer to_____.
a. Filter the transformer oil
b. Provide cold air in the transformer
c. Absorb moisture of air during breathing
d. None of the above

855 Which of the given test determine the iron loss of the transformer?
a. Short circuit test
b. Back-to-back test
c. Open circuit test
d. Both (a) & (b)

856 The essential condition for parallel operation of two single-phase transformers is that they should have the same_____.
a. KVA Rating
b. Turn Ratio
c. Polarity
d. Both (b) & (c)

857 The main purpose of performing short circuit test in a transformer is to measure its_____.
a. Copper loss
b. Core loss
c. Insulation Resistance
d. Total loss

858 The flashpoint of transformer oil must be greater than_____.
a. 100 degree
b. 125 degree
c. 140 degree
d. 160 degree

859 During the open circuit test of a transformer_____.
a. The secondary is supplied rated KVA.
b. Primary is supplied with no-load current.
c. Primary is supplied current at high voltage.
d. Primary is supplied rated voltage.

860 If a D.C. motor is to be selected for conveyors, which motor would be preferred?
a. Series motor
b. Shunt motor
c. Differentially compound motor
d. Cumulative compound motor

861 The reason for using starter while starting of DC motor is_____.
a. To restrict armature current as there is no back E.M.F at starting
b. Motors are not self-starting
c. Restrict starting torque
d. None of the above

862 Which DC motor is preferred for Elevator?
a. Differentially compound motor
b. Series motor
c. Shunt Motor
d. Cumulative compound motor

863 If a D.C. motor is connected across the A.C. supply it will_____.
a. run at normal speed
b. not run
c. run at a slower speed
d. burn due to heat produced in the field winding by eddy currents

864 Which of the following DC motor have the tendency of load instability?
a. Cumulative compound motor
b. Shunt Motor
c. Series motor
d. Differentially compound motor

865 To get the speed of D.C, motor below the normal without wastage of electrical energy is_____ used.
a. Ward Leonard control
b. rheostatic control
c. any of the above method
d. none of the above methods

866 In the DC machine, the fractional pitch winding is used_____.
a. to reduce the Harmonic in generated E.M.F.
b. to improve Cooling
c. to increase E.M.F.
d. to reduce the copper losses

867 A three-point starter is suitable for_____.
a. Shunt Motor
b. Series Motor
c. Shunt & Compound Motor
d. Shunt, Series, and compound motor

868 When two D.C. series motors are connected in parallel, the resultant speed is_____.
a. more than the normal speed
b. less than the normal speed
c. normal speed
d. zero

869 The starting resistance of D.C motor is generally
a. High
b. Infinite
c. Low
d. None of the above

870 The speed of a D.C. shunt motor more than its full-load speed can be obtained by_____.
a. decreasing the field current
b. increasing the field current
c. decreasing the armature current
d. increasing the armature current

871 If the back E.M.F. of DC motor vanishes then_____.
a. The motor continues to run
b. Motor will stop
c. Armature will burn
d. The motor continues to run at a slow speed

872 In a D.C. shunt motor, speed is_____.
a. independent of armature current
b. directly proportional to the armature current
c. proportional to the square of the current
d. inversely proportional to the armature current

873 When the speed of D.C motor is increased_____.
a. Back E.M.F increases and current drawn decreases
b. Back E.M.F decreases and current drawn increases
c. Back E.M.F and current drawn both increases
d. Back E.M.F and current drawn both decreases

874 Which D.C. motor has got maximum self-relieving property?
a. Series motor
b. Shunt motor
c. Cumulatively compounded motor
d. Differentially compounded motor

875 In the D.C. motor the iron losses occur in_____.
a. the field
b. the armature

c. the brushes
d. the commutator

876 Differentially compound D.C. motors can find applications requiring_____.
a. high starting torque
b. low starting torque
c. variable speed
d. frequent on-off cycles

877 Which D.C. motor is preferred for machine tools?
a. Series motor
b. Cumulative compound motor
c. Differentially compound motor
d. Shunt motor

878 By looking at which part of the motor, it can be easily confirmed that a particular motor is a D.C. motor?
a. Frame
b. Shaft
c. Commutator
d. Stator

879 In which of the following applications D.C. series motor is invariably tried?
a. Starter for a car
b. Drive for a water pump
c. Fan motor
d. Motor operation in A.C. or D.C.

880 What will happen when the D.C motor is connected to the A.C supply then?
a. D.C motor will run at rated speed
b. D.C motor will burn
c. D.C motor will run at a slow speed
d. Both (b) & (c)

881 In a D.C. generator all of the following could be the effects of iron losses except_____.
a. Loss of efficiency
b. Excessive heating of the core
c. Increase in terminal voltage
d. The rise in temperature of ventilating air

882 Which of the following loss in a D.C. generator varies significantly with the load current?
a. Field copper loss
b. Windage loss
c. Armature copper loss
d. None of the above

883 Hopkinson's test on D.C. machines is conducted at_____.
a. no-load
b. part load
c. full-load
d. overload

884 Which of the following application requires high starting torque?
a. Air blower
b. Elevator
c. Locomotive
d. Centrifugal Pump

885 Which DC motor is used for the conveyor?
a. Series motor
b. Cumulative compound motor
c. Differentially compound motor
d. Shunt motor

886 The armature voltage control of D.C. motor provides_____.
a. constant voltage drive
b. constant current drive
c. constant torque drive
d. none of the above

887 In D.C. machines fractional pitch winding is used_____.
a. to improve cooling
b. to reduce copper losses
c. to increase the generated e.m.f.
d. to reduce the sparking

888 The purpose of retardation test on D.C. shunt machines is to find out_____.
a. stray losses
b. eddy current losses
c. field copper losses
d. windage losses

889 What will happen when the field of a DC shunt motor gets opened while the motor is running?
a. Continue to run at the same speed
b. Speed of motor will be reduced
c. The motor will attain dangerous high speed
d. Armature current will be reduced

890 During rheostat braking of D.C. series motors_____.
a. the motor is run as a generator
b. motor is reversed in direction
c. motor is run at reduced speed
d. None of the these

891 For which types of D.C. motor, dynamic braking is generally used?
a. Shunt motors
b. Series motors
c. Compound motors
d. All of the above

892 The efficiency of the DC motor at maximum power is_____.
a. 90%
b. 100%
c. Around 80%
d. Less than 50%

893 Which of the following tests will be suitable for testing two similar D.C. series motors of large capacity?
a. Swinburne's test
b. Hopkinson's test
c. Field test
d. Brake test

894 Which of the following motor has the poorest speed regulation?
a. Shunt motor
b. Series motor
c. Differential compound motor
d. Cumulative compound motor

895 In which of the following applications DC series motor is used?
a. Centrifugal Pump
b. Motor Operation in DC and AC
c. Water pump drive
d. Starter for car

896 The speed of a D.C. shunt motor can be increased by_____.
a. increasing the resistance in the armature circuit
b. increasing the resistance in the field circuit
c. reducing the resistance in the field circuit
d. reducing the resistance in the armature circuit

897 The armature torque of the D.C. shunt motor is proportional to_____.
a. field flux only
b. armature current only
c. both (a) and (b)
d. none of the above

898 Which part of the DC motor can sustain maximum temperature rise?
a. Armature Winding
b. Field winding
c. Slip Ring
d. Commutator

899 The ratio of starting torque to full load torque is least in_____.
a. Differential Compound Motor
b. Shunt motor
c. Series Motor
d. Cumulative compound motor

900 Buses, trains, trolleys, hoists, cranes require high starting torque and therefore make use of_____.
a. D.C. series motor
b. D.C. shunt motor
c. induction motor
d. all of the above motors

901 The speed of a D.C. shunt motor is required to be more than full load speed. This is possible by_.
a. reducing the field current
b. decreasing the armature current
c. increasing the armature current
d. increasing the excitation current
e. none of the above methods

902 If I_a be the armature current, then the speeds of a D.C. shunt motor is_____.
a. independent of Ia
b. proportional to la
c. varies as 1/Ia
d. varies as la

903 Which DC motor has the least percentage increase in input current for the same percentage increase in torque?
a. Separately excited motor
b. Series motor
c. Shunt motor
d. Compound motor

904 As the load is increased, the speeds of D.C. shunt motor will_____.
a. reduce slightly
b. increase slightly
c. increase proportionately
d. remains unchanged

905 In case-the conditions for maximum power for a D.C. motor are established, the efficiency of the motor will be_____.
a. 100%
b. around 90%
c. anywhere between 75% and 90%
d. less than 50%

906 Which of the following method of speed control of D.C. machine will offer minimum efficiency?
a. Voltage control method
b. Field control method
c. Armature control method
d. All above methods

907 Counter E.M.F. of the DC motor is_____.
a. Less than the applied voltage
b. More than the applied voltage
c. Equal to the applied voltage
d. None of the above

908 A three point starter is considered suitable for_____.
a. shunt motors
b. shunt as well as compound motors
c. shunt, compound, and series motors
d. all D.C. motors

909 Which motor has the poorest speed control?
a. Differentially compounded motor
b. Cumulatively compounded motor
c. Shunt motor
d. Series motor

910 The curve representing Ohms law is a_____.
a. Linear
b. Cosine function
c. Parabola
d. Hyperbola

911 An instrument which detects electric current is known as_____.
a. voltmeter
b. rheostat
c. wattmeter
d. galvanometer

912 The instrument used for measuring an electric current is :
a. galvanometer
b. ammeter
c. voltmeter
d. potentiometer

913 Electric current is defined as a flow of_____.
a. electric charge in units of volts per s.
b. protons in units of protons per s.
c. electric charge in units of coulomb per s.
d. electrons in units of electrons per s.

914 The S.I. unit of power is_____.
a. Henry
b. coulomb
c. watt
d. watt-hour

915 Which of the following is not an electrical classification of materials?
a. Semiconductors
b. Semi-insulators
c. Insulators
d. Conductors

916 Electric pressure is also called_____.
a. resistance
b. power
c. voltage
d. energy

917 What are the basic components of a simple electric circuit?
a. energy source
b. connecting wires
c. switch
d. All the above

918 To produce an electric current what is the requirement?
a. A voltage source
b. A source of energy that moves charges
c. An electric field moving through a conductor
d. Any of the above

919 Conductance is reciprocal of_____.
a. resistance
b. inductance
c. reluctance
d. capacitance

920 The resistance of a conductor varies inversely as_____.
a. length
b. area of cross-section
c. temperature
d. resistivity

921 Resistance 'R' of a wire of length "L" is given by the relation:
a. R=L/ρa
b. R=L/A
c. R=ρL/A
d. None of the above

922 A light bulb draws 300 mA when the voltage across it is 240 V. The resistance of the light bulb is
a. 400 Ω
b. 600 Ω
c. 800 Ω
d. 1000 Ω

923 A 430 ohm resistor, a 210 ohm resistor, and a 100 ohm resistor are all in parallel. The total resistance is :
a. 0.017 ohm
b. 58.82 ohm
c. 58.82 kilo ohm
d. None of the above

924 It becomes more difficult to remove_____.
a. any electron from the orbit
b. first electron from the orbit
c. second electron from the orbit
d. third electron from the orbit

925 When two positively charged materials will be placed close together then :
a. it will repel each other
b. become negative
c. it will attract each other
d. None of the above

926 When one leg of parallel circuit is opened out the total current will_____.
a. reduce
b. increase
c. decrease
d. become zero

927 Which of the following is not a type of energy source?
a. generator
b. solar cell
c. rheostat
d. battery

928 In a lamp load when more than one lamp are switched on the total resistance of the load_____.
a. increases
b. decreases
c. remains same
d. none of the above

929 Electrons in the outer orbit are called_____.
a. shells
b. valences
c. nuclei

d. All the above

930 The resistance of a parallel circuit consisting of two branches is 12 ohms. If the resistance of one branch is 18 ohms, what is the resistance of the other?
a. 18 Ω
b. 36 Ω
c. 48 Ω
d. 64 Ω

931 Which of the following statement is true both for a series and a parallel D.C. circuit?
a. Elements have individual currents
b. Currents are additive
c. Voltages are additive
d. Power are additive

932 When will be the current flows in a circuit?
a. a switch is closed
b. a switch is opened
c. switch is either open or closed
d. none of the above

933 Which of the following materials has a negative temperature co-efficient of resistance?
a. Copper
b. Aluminum
c. Carbon
d. Brass

934 Bulbs in street lighting are all connected in_____.
a. parallel
b. series
c. series-parallel
d. end-to-end

935 Give the name of materials which contain lots of free electrons.
a. insulators
b. conductors
c. semiconductors
d. None of the above

936 For testing appliances, the wattage of test lamp should be_____.
a. very low
b. low
c. high
d. any value

937 The unit of electrical charge is the_____.
a. coulomb
b. volt
c. joule
d. watt

938 Switching of a lamp in house produces noise in the radio. This is because switching operation produces_____.
a. arcs across separating contacts
b. mechanical noise of high intensity
c. both mechanical noise and arc between contacts
d. none of the above

939 When one of three series resistors is removed from a circuit and the circuit is reconnected, the current_____.
a. increases by half
b. increases
c. decreases by half
d. None of the above

940 Ohm's law is not applicable to_____.
a. vacuum tubes
b. carbon resistors
c. high voltage circuits
d. circuits with low current densities

941 Four wires of same material, the same cross-sectional area and the same length when connected in parallel give a resistance of 0.25 Ω. If the same four wires are connected is series the effective resistance will be
a. 1 Ω
b. 2 Ω
c. 3 Ω
d. 4 Ω

942 If a 24 V and a 10 V battery are series opposing, the total voltage is_____.

a. 14 V
b. 10 V
c. 24 V
d. 34 V

943 Temperature co-efficient of resistance is expressed in terms of_____.
a. ohms/°C
b. mhos/ohm°C
c. ohms/ohm°C
d. mhos/°C

944 A series circuit consists of three resistors with values of 140, 250, and 220. The total resistance is_____.
a. 330
b. 610
c. 720
d. None of the above

945 A rheostat differs from potentiometer in the respect that it_____.
a. has lower wattage rating
b. has higher wattage rating
c. has large number of turns
d. offers large number of tapping

946 According to Ohm's law, if voltage increases and resistance stays the same:
a. resistance decreases
b. current increases
c. current remains the same
d. current decreases

947 The weight of an aluminium conductor as compared to a copper conductor of identical cross-section, for the same electrical resistance, is_____.
a. 50%
b. 60%
c. 100%
d. 150%

948 An open resistor, when checked with an ohm-meter reads_____.
a. zero
b. infinite
c. high but within tolerance
d. low but not zero

949 The amount of work done in joules, when one unit electric charge moves from one point to another point in an electric circuit is called :
a. resistance
b. potential difference
c. current
d. charge

950 Which of the following materials has the least resistivity?
a. Zinc
b. Lead
c. Mercury
d. Copper

951 The relation between the potential difference (V) and current (I) was discovered by :
a. Volt
b. Ohm
c. Newton
d. Ampere

952 When current flows through heater coil it glows but supply wiring does not glow because_____.
a. current through supply line flows at slower speed
b. supply wiring is covered with insulation layer
c. resistance of heater coil is more than the supply wires
d. supply wires are made of superior material

953 The unit of e.m.f. is_____.
a. volt
b. Joule
c. Ampere
d. Watt

954 A current of 16 amperes divides between two branches in parallel of resistances 12 ohms and 8 ohms respectively. The current in each branch is_____.
a. 6.4 A, 6.9 A
b. 6.4 A, 9.6 A

c. 6 A, 6.9 A
d. 6 A, 9.6 A

955 What are the different parts of a rheostat?
a. only wiper
b. wiper and resistor track
c. armature
d. only resistor track

956 The SI unit of electric current is :
a. ohm
b. volt
c. ampere
d. watt

957 The rate of flow of an electric charge is known as :
a. electric potential
b. electric resistance
c. electric current
d. None of the above

958 Insulating materials have the function of_____.
a. preventing a short circuit between conducting wires
b. preventing an open circuit between the voltage source and the load
c. conducting very large currents
d. storing very high currents

959 A series circuit consists of three resistors. Two resistors are 4 kohm each. The total resistance is 12 kohm. The value of the third resistor_____.
a. 92 k ohm
b. 920 ohm
c. 9200 ohm
d. None of the above

960 The rating of a fuse wire is always expressed in_____.
a. ampere-hours
b. ampere-volts
c. kWh
d. amperes

961 A closed switch has a resistance of_____.
a. zero
b. about 50 ohms
c. about 500 ohms
d. infinity

962 An ideal voltmeter would have an:
a. Infinite resistance
b. Very low resistance
c. Double the resistance
d. Resistance equal to the circuit

963 A synchronous motor is operating on no load at unity power factor. If the field current is increased, the power factors will become_____.
a. leading and the current will decrease
b. lagging and the current will increase
c. lagging and the current will decrease
d. leading and the current will increase

964 The phenomenon of oscillation of the rotor of a synchronous motor about its equilibrium position corresponding to new load on sudden throwing off or increasing of load is called the_____.
a. swinging
b. crawling
c. hunting
d. none of these

965 A 3-phase synchronous motor hunts due to_____.
a. Fluctuating load.
b. Fluctuating supply voltage.
c. Excessive field current.
d. Faulty connections.
e. Either fluctuating load or fluctuating supply voltage.

966 In asynchronous motor hunting can be reduced to minimum possible by_____.
a. Providing damper winding in the rotor pole faces.
b. Using a flywheel.
c. Designing the motor for adequate synchronizing power.
d. Any of the above methods.

967 Which of the following methods is employed for starting a 3-phase synchronous motor?
a. Star-delta starter.
b. Damper winding.
c. Resistance starter in the stator circuit.
d. All of the above.

968 While starting a 3-phase synchronous motor by induction motor action, very high e.m.f. is induced in the field winding. The damage to the insulation of field winding and slip-rings can be avoided by_____.
a. Damper winding in conjunction with a star-delta starter or an auto-transformer starter.
b. Splitting the field winding in several sections.
c. Short circuiting the field winding through field discharge resistance.
d. none of these

969 Synchronous motors are inherently not self-starting motors as_____.
a. the direction of instantaneous torque on the rotor reverses after each half cycle
b. there is no slip
c. the stator does not produce revolving magnetic field
d. it has no starting winding

970 The mmf produced by single phase winding is_____.
a. pulsating and rotating with constant speed
b. pulsating and stationary
c. constant in amplitude and stationary
d. constant in amplitude and rotating

971 Numbers of slip-rings in a 3-phase synchronous motor will be_____.
a. 0
b. 1
c. 2
d. 3

972 A cell that cannot be recharged is known as_____.
a. a dry cell
b. a wet cell
c. a primary cell
d. secondary cell

973 A dc wattmeter essentially consists of_____.
a. two ammeters
b. a voltmeter and an ammeter
c. two voltmeters
d. a current and a potential transformer

974 High ac voltages are usually measured with_____.
a. electrostatic voltmeters
b. voltmeter and current transformer
c. potential transformer and voltmeter
d. voltmeter and multiplier

975 A moving-coil instrument can be used to measure____.
a. low frequency
b. high frequency
c. direct current
d. (a) and (b) both

976 The resistance of a field coil may be correctly measured by using_____.
a. a voltmeter and an ammeter
b. Schering bridge
c. a Kelvin double bridge
d. a Maxwell bridge

977 Which of the following instrument will be used to measure alternating current only?
a. moving-iron voltmeter
b. permanent-magnet type ammeter
c. induction-type ammeter
d. Moving-iron (attraction-type) ammeter.

978 When connecting wattmeter's to a load circuit consuming large current, it is necessary use_____.
a. potential transformers
b. isolation transformers
c. power shunts
d. current transformers

979 Which of the following electrical equipment cannot convert ac into dc?
a. diode
b. converter
c. transformer
d. mercury-arc rectifier

980 The electric device which blocks dc but allows ac is called_____.
a. capacitor
b. inductor
c. amplifier
d. transducer

981 By resolution of an indicating instrument is meant_____.
a. the smallest change in the output reading due to drifting of pointer
b. the smallest change in applied stimulus which will indicate a detectable change in deflection
c. the difference between various readings for the same applied stimulus
d. none of these

982 Threshold of sensitivity with respect to measuring instrument is_____.
a. the maximum signal which can be measured
b. the value of sensitivity on the highest scale
c. the value of sensitivity on the lowest scale
d. the smallest signal which results in a detectable output

983 The difference between the indicated value by an instrument and true value of a variable is called_____.
a. dead zone error
b. relative error
c. static error
d. drift error

984 Essential requirement of an electrical measuring instrument is that_____.
a. its resistance should be low
b. it is always connected in series in the circuit
c. its introduction into the circuit under measurement does not alter the circuit conditions and the power consumed by it for its operation is small
d. its resistance should be infinite

985 Main advantage of PMMC instrument is_____.
a. high torque weight ratio providing high accuracy
b. uniform scale
c. possibility of using a single instrument for many different current and voltage ranges by use of shunts and multipliers
d. capability of measuring both ac and dc quantities

986 In moving coil instruments, scale used is_____.
a. nonlinear scale
b. linear scale
c. square scale
d. logarithmic scale

987 When an ac voltage is applied to a PMMC voltmeter,_____.
a. the meter gets damaged
b. meter reading is zero
c. pointer will oscillate to and fro
d. the pointer will not move at all

988 The function of swamping resistor put in series with the moving coil of a moving coil meter is_____.
a. to achieve full-scale sensitivity of the meter
b. to reduce the full-scale current
c. to increase the strength of the field
d. to compensate for transporative variations

989 Frequency compensation in a moving iron instrument is achieved by connecting_____.
a. a capacitor in series with the fixed coil
b. a capacitor across the fixed coil

c. high resistance in series with the coil
d. low resistance in series with the coil

990 The advantage of electrodynamometer type of instruments is_____.
a. low torque/weight ratio
b. large operating current
c. non-uniform scale
d. the coil being air cored, these instruments are free from hysteresis and eddy current errors

991 The damping of ballistic galvanometer is kept very small_____.
a. to make the system oscillating
b. in order to get large first deflection
c. in order to get small first deflection
d. to make the system critically damped

992 If the current sensitivity of a galvanometer is increased, the voltage sensitivity_____.
a. decreases
b. increases
c. remains unaltered
d. may increase or decrease

993 Electrostatic voltmeters_____.
a. are not frequency limited
b. have uniform scale
c. have scale reading rms value on ac circuits
d. have scale reading peak value on ac circuits

994 If a d'Arsonval meter movement is rated at 50 μA, and only 25 μA is passing through its coil, the deflection will be_____.
a. 100 per cent of full scale
b. 50 per cent of full scale
c. 25 per cent of full scale
d. 10 per cent of full scale

995 The instrument whose deflection is given
a. Electro-dynamic type
b. repulsion type
c. electrostatic type
d. attraction type

996 Which of the following instrument consumes the lowest power measurement?
a. VTVM
b. PMMC instrument
c. electrostatic instrument
d. d'Arsonval instrument

997 Instrument used for dc measurement alone is_____.
a. moving iron type
b. permanent magnet type
c. Electro-dynamic type
d. induction type

998 Instrument used for ac measurement alone is_____.
a. permanent magnet type
b. hot wire type
c. electrostatic type
d. induction type

999 Which of the following instruments should be used for measuring ac current?
a. induction type ammeter
b. moving iron (attraction type) ammeter
c. moving iron voltmeter
d. permanent magnet type ammeter

1000 An electrical measuring instrument has sensitivity of 1000 ohms/volt. On 100 volt scale, this instrument will have internal resistance of_____.
a. 10Ω
b. 104Ω
c. 105Ω
d. 1000Ω

1001 All meters used for measuring current, voltage and resistance are basically_____.
a. multi-meters
b. voltmeters
c. current meters
d. ohm meters

1002 The phenomenon of creeping occurs in_____.
a. ammeters
b. voltmeters
c. watt meters
d. energy meters

1003 Swamping resistance is added to the coil circuit_____.
a. to increase the sensitivity
b. to reduce the temperature error
c. to reduce error due to thermal e.m.f.
d. to reduce the power drawn by the instrument

1004 Precision measurement of resistances is generally carried out by_____.
a. potentiometer method
b. CRO method
c. voltmeter-ammeter method
d. bridge method

1005 The controlling torque in an indicating instrument is produced by_____.
a. utilizing magnetic, electro-dynamic and electrostatic effects
b. spring control or gravity control
c. eddy current
d. fluid friction

1006 The most efficient form of damping in an instrument is_____.
a. eddy current
b. fluid friction
c. air friction
d. none of these

1007 Instrument accuracy is defined as_____.
a. the measure of consistency or reproducibility of the measurements
b. closeness with which an instrument reading approaches the true value of the quantity being measured
c. the smallest measurable input change
d. the ratio of the change in output signal to the change in the input signal

1008 Instrument efficiency is defined as_____.
a. the ability of the instrument to read the smallest input changes
b. the ratio of the measured quantity at full scale to the power taken by the instrument at full scale
c. the ratio of the change in output signal to the change in input signal
d. the ability of the system to reproduce the output in the same form as the input

1009 A current transformer_____.
a. should have its secondary open while the primary is carrying current
b. should never have its secondary open while the primary is carrying current
c. is never used with the secondary circuit closed through ammeters, wattmeter's, current coils or relay coils
d. may keep the secondary circuit closed without any serious trouble

1010 Anderson bridge_____.
a. requires a standard inductor in terms of which the loss angle of the capacitor is expressed
b. is applicable for precise measurement of capacitances
c. is applicable for precise measurement of inductances over a wide range of values
d. requires a standard resistor in terms of which the self inductance is expressed

1011 Hay's bridge_____.
a. is particularly suited for measurement of inductance having high Q-value
b. is suited for measurement of capacitance having high Q-value
c. is suited for measurement of inductance having low Q-value

d. is particularly suited for measurement of capacitance over a wide range of values

1012 Wien bridge is used for the measurement of_____.
a. resistance
b. capacitance
c. frequency
d. inductance

1013 AC bridges have_____.
a. leakage error and eddy current errors only
b. residual errors, frequency errors and waveform errors only
c. both (a) and (b) above
d. no error

1014 Induction type single phase energy meter is_____.
a. an ampere-hour meter
b. true watt-hour meter
c. wattmeter
d. none of these

1015 Two-wattmeter method can be used to measure the total power delivered to_____.
a. star connected load only
b. delta connected load only
c. star as well as delta connected loads
d. star connected with neutral load

1016 LVDT_____.
a. converts linear motion into electrical signal
b. translates electrical signal into linear motion
c. helps measuring temperature
d. can be used to sense angular displacement

1017 Piezo-electric quartz crystal can be used to measure_____.
a. temperature
b. velocity
c. acceleration
d. flow

1018 Dummy strain gauge in used to_____.
a. increase the efficiency
b. increase the range
c. compensate for temperature changes
d. make the bridge self balancing

1019 CRO helps in measuring the following values of an ac voltage_____.
a. rms value only
b. peak value only
c. average value only
d. all the above three

1020 The best method of measuring capacitance is_____.
a. CRO method
b. transistor voltmeter method
c. voltmeter-ammeter method
d. ac bridge method

1021 A wave guide acts as a_____.
a. low pass filter
b. high pass filter
c. band pass filter
d. band stop filter

1022 One single-phase wattmeter operating on 230 V and 5A for 5 hours makes 1940 revolutions. Meter constant in revolutions is 40. The power factors of the load will be_____.
a. 1
b. 0.8
c. 0.7
d. 0.6

1023 A CRO screen has ten divisions on the horizontal scale. If a voltage signal 5 sin $(314\ t + 45^0)$ is examined with a line base setting of 5 m sec/div, the number of cycles of signal displayed on the screen will be_____.
a. 0.5 cycles
b. 2.5 cycles
c. 5 cycles
d. 10 cycles

1024 A moving coil galvanometer is made into an ammeter by connecting_____.
a. a low resistance across the meter
b. a high resistance in series with the meter
c. a pure inductance across the meter
d. a capacitor is series with the meter

1025 A simple moving coil meter cannot be used to measure radio frequency currents because_____.
a. the meter would introduce an inductive reactance in the circuit
b. large heat dissipation results
c. damping of the meter becomes difficult of radio frequencies
d. the meter is not very accurate at radio frequencies

1026 The error which does not result in moving iron instrument for both ac and dc measurements_____.
a. stray magnetic field error
b. hysteresis error
c. eddy current error
d. temperature error

1027 The advantage of a moving iron instrument is that_____.
a. it has linear scale
b. its current sensitivity is high
c. it can be used under severe overload condition
d. it can be used at high frequencies

1028 Moving iron meters can be used up to frequency of_____.
a. 50 Hz
b. 100 Hz
c. 500 Hz
d. 1500 Hz

1029 The advantage of electrostatic instruments is that_____.
a. they are cheap, robust and small in size
b. their indicating scale is uniform
c. their operating forces are large
d. their power drain from the mains is negligible

1030 The damping of ballistic galvanometer is kept very small_____.
a. to make the system oscillating
b. in order to get large first deflection
c. in order to get small first deflection
d. to make the system critically damped

1031 Electrostatic instruments are not free from effect of_____.
a. temperature
b. frequency
c. stray magnetic field
d. stray electrostatic field

1032 For capacitance measurement, a ballistic galvanometer should have_____.
a. a high critical resistance and a low period of oscillation
b. a high critical resistance and a high period of oscillation
c. a low critical resistance and a high period of oscillation
d. a low critical resistance and a low period of oscillation

1033 The fixed coil in an electrodynamometer is normally used as a_____.
a. potential coil
b. current coil
c. either as potential coil or as current coil
d. there is no fixed coil in electrodynamometer

1034 Deflection of the d' Arsonval meter movement is caused by_____.
a. current in the coil and the magnet
b. the spring and the magnet
c. the pivot and the springs
d. the magnetic field alone

1035 When we measure ac voltage with a d' Arsonval meter movement, the meter will respond to_____.
a. ac signal
b. dc signal
c. rectified dc signal

d. pulsating ac signal

1036 A d' Arsonval meter of 200 ohm coil and 0-1 mA sensitivity is to work as voltmeter of full scale rating 10 volts. The value of multiplier should be_____.
a. 1 kΩ
b. 10 kΩ
c. 9800 Ω
d. 900 Ω

1037 Rectifier instruments indicate_____.
a. rms value
b. average value
c. peak value
d. dc value

1038 The principle of d'Arsonval instrument is similar to which of the following instruments?
a. moving iron
b. PMMC
c. induction
d. digital

1039 In a ballistic galvanometer, damping follows_____.
a. hyperbolic decay
b. logarithmic decay
c. exponential decay
d. exponential rise

1040 The instrument which should be used to measure 600 kV ac voltage is_____.
a. Electrostatic voltmeter
b. Moving coil voltmeter
c. Moving iron voltmeter
d. Hot wire instrument

1041 Which of the following instruments consumes maximum power during measurement?
a. induction instrument
b. hot wire instrument
c. thermocouple instrument
d. electrodynamometer instrument

1042 Which of the following instruments will have the same calibration on both ac and dc?
a. electrodynamometer type
b. moving iron type
c. moving coil type
d. induction type

1043 The multiplier and the meter movement in a voltmeter are always in_____.
a. parallel
b. series
c. parallel-series
d. series-parallel

1044 The function of a shunt in an ammeter_____.
a. by pass the current
b. increase the meter's resistance
c. decrease the voltage drop
d. increase the current in the coil

1045 A measure of reproducibility of measurement is known as_____.
a. resolution
b. fidelity
c. precision
d. accuracy

1046 Difference between the indicated value and the true value of a quantity is known as_____.
a. Gross error
b. absolute error
c. dynamic error
d. relative error

1047 Meggar is an instrument for_____.
a. measuring current
b. measuring voltage
c. testing insulation
d. measuring power

1048 Gravity control instruments have scales which are not uniform but are crowded because_____.
a. balance weight itself is not uniform
b. current is proportional to sin 0 where 0 is the deflection angle
c. balance weight is greater than control weight
d. current is proportional to deflection angle

1049 Eddy current damping cannot be used for moving iron instruments because the_____.
a. weight of instrument increases
b. presence of permanent magnet required for this purpose will affect the deflection and hence the instrument reading
c. size of instrument increases
d. eddy currents will pass through iron and thereby cause loss

1050 Which of the following methods is best suited for measurement of a dc potential difference of 1 volt?
a. bridge method
b. voltmeter
c. CRO
d. potentiometer

1051 Resolution of a measuring instrument is defined as_____.
a. the smallest measurable input change
b. consistency or the reproducibility of the measurement
c. ability to reproduce the output in the same from as the input
d. ratio of the change of output signal to change in the input signal

1052 Reproducibility measurement of an instrument gives an indication of_____.
a. resolution
b. precision
c. reliability
d. accuracy

1053 Which of the following instruments is free from hysteresis and eddy current losses?
a. M.I. instrument
b. Electrostatic instrument
c. Electrodynamometer type instrument
d. All of these

1054 Function of the zero-adjust control in a multi-meter is to_____.
a. conduct the current
b. change the sensitivity of the meter
c. to correct the zero point
d. to tighten up the moving parts to the casing

1055 The common method of measuring 3-phase balanced or unbalanced power is_____.
a. one wattmeter method
b. two wattmeter method
c. three wattmeter method
d. none of these

1056 In an energy meter, steady speed of the disc is achieved when
a. braking torque is less than the operating torque
b. braking torque is twice the operating torque
c. braking torque is equal to the operating torque
d. braking torque is more than the operating torque

1057 Three phase four-wire energy meter is used to measure_____.
a. single phase energy
b. two phase energy
c. three phase balanced energy
d. three phase unbalanced energy

1058 The most common method for measurement of low resistance is_____.
a. Wheatstone bridge method
b. potentiometer method
c. voltmeter-ammeter method
d. Kelvin's double bridge method

1059 For measurement of very high resistance (insulation resistance), the instrument used is_____.
a. multi-meter
b. potentiometer
c. Meggar
d. Wheatstone bridge

1060 If the secondary winding of current transformer is left open,_____.
a. there will be no current in the primary
b. current transformer will blast

c. no damage will result
d. there will be only magnetizing component of current in the primary

1061 Instrument transformers are used in ac system for help in the measurement of_____.
a. current and voltage
b. power and energy
c. power factor
d. all of these

1062 For an instrument transformer, the ratio error is defined as_____.
a. rated primary current/rated secondary current
b. nominal ratio-actual ratio/actual ratio
c. actual ratio/nominal ratio
d. actual ratio-nominal ratio/nominal ratio

1063 A battery of 6 cells will show a drop of_____volts from fully charged state to fully discharged state.
a. 1
b. 1.5
c. 2.4
d. 2.9

1064 If the centrifugal switch does not open at 70 to 80 percent of synchronous speed of motor, it would result in_____.
a. Damage to the starting winding
b. Damage to the centrifugal switch
c. Overloading of running winding
d. None of the above

1065 Starting winding of a single phase motor of a refrigerator is disconnected from the circuit by means of a_____.
a. Magnetic relay
b. Thermal relay
c. Centrifugal switch
d. None of the above

1066 In case of a reluctance motor, when the load is increased so that it cannot maintain synchronous speed, the motor will_____.
a. Become unstable
b. Draw excessive armature current and may burn out
c. Fall out of synchronism and come to stand still
d. Run as induction motor

1067 Speed control of a universal motor is achieved by_____.
a. Varying field flux with tapped field windings
b. Connecting rheostat in series
c. Applying variable voltage by means of silicon controlled rectifier
d. All of the above methods

1068 The starting winding of a single-phase motor is placed in_____.
a. Armature
b. Field
c. Rotor
d. Stator

1069 The running winding of a single phase motor on testing with Meggar is found to be ground. Most probable location of the ground will be_____.
a. At the end connections
b. At the end terminals
c. Anywhere on the winding inside a slot
d. At the slot edge where coil enters or comes out of the slot

1070 Short-circuitry is used in_____.
a. Repulsion induction motor
b. Repulsion motor
c. Repulsion start induction run motor
d. None of the above

1071 Which of the following motors is preferred for tape-recorders?
a. Shaded pole motor
b. Hysteresis motor
c. Two value capacitor motor
d. Universal motor

1072 Which of the following single-phase induction motors is generally used in time phonographs?
a. Resistance start
b. Capacitor start capacitor run
c. Shaded pole
d. Universal

1073 The direction of rotation of universal motor can be reversed the by reversing the flow of current through_____.
a. Armature winding
b. Field winding
c. Either armature winding or field winding
d. None of the above

1074 The speed control of universal motor used for sewing machines is by_____.
a. Friction
b. Varying the resistance
c. Tapping the field
d. Centrifugal mechanism

1075 The purpose of stator winding in the compensated repulsion motor is to_____.
a. Provide mechanical balance
b. Improve power factor and provide better speed regulation
c. Prevent hunting in the motor
d. Eliminate armature reaction

1076 Which of the following statements regarding two value capacitor motor is incorrect?
a. It is a reversing motor
b. It is preferred to permanent-split single-value capacitor motor where frequent reversals are required
c. It has low starting as well as rushing currents
d. It has high starting torque

1077 A universal motor is one which_____.
a. Can be operated either on D.C. or A.C. supply at approximately the same speed and output
b. Can be marketed internationally
c. Runs at dangerously high speed on no-load
d. None of these

1078 Which of the following statements regarding hysteresis motor is in incorrect?
a. It is extremely sensitive to fluctuations in supply voltage
b. Its high starting torque is due to its high rotor hysteresis loss
c. It is extremely quiet in operation
d. It accelerates from rest to full-speed almost instantaneously

1079 In a split phase motor, the running winding should have_____.
a. High resistance and low inductance
b. Low resistance and high inductance
c. High resistance as well as high inductance
d. Low resistance as well as low inductance

1080 In a shaded pole single-phase motor, the revolving field is produced by the use of_____.
a. Inductor
b. Capacitor
c. Resistor
d. Shading coils

1081 The direction of rotation of a hysteresis motor is determined by_____.
a. Interchanging the supply leads
b. Position of shaded pole with respect to main pole
c. Retentivity of the rotor material
d. None of these

1082 A universal motor can run on_____.
a. A.C. only
b. D.C. only
c. Either A.C. or D.C.
d. None of the above

1083 The wattage rating for a ceiling fan motor will be in the range_____.
a. 200 to 250 W
b. 250 to 500 W

c. 50 to 150 W
d. 10 to 20 W

1084 As hysteresis motors are free from mechanical and magnetic vibrations therefore these are considered as suitable for_____.
a. Fans
b. Blowers
c. Sound equipment
d. Mixer grinders

1085 The rotor slots, in an induction motor, are usually not quite parallel to the shaft because it_____.
a. Improves the efficiency
b. Helps the rotor teeth to remain under the stator teeth
c. Helps in reducing the tendency of the rotor teeth to remain under the stator teeth
d. Improves the power factor

1086 Most of the fractional horsepower motors have either_____.
a. Hard and annealed bearings
b. Ball or roller bearings
c. Soft and porous bearings
d. Plain or sleeve bearings

1087 The capacitors used in single-phase capacitor motors have no_____.
a. Voltage rating
b. Dielectric medium
c. Polarity marking
d. Definite value

1088 Which of the following statements regarding single-phase induction motors correct?
a. It requires only one winding
b. It can rotate in one direction only
c. It is self-starting
d. It is not self-starting

1089 If the capacitor of a single-phase motor is short-circuited_____.
a. The motor will not start
b. The motor will run
c. The motor will run in reverse direction
d. The motor will run in the same direction at reduced r.p.m.

1090 A capacitor-start single phase induction motor is switched on to supply with its capacitor replaced by an inductor of equivalent reactance value. It will_____.
a. Start and then stop
b. Start and run slowly
c. Start and run at rated speed
d. Not start at all

1091 For which of the applications a reluctance motor is preferred?
a. Electric shavers
b. Refrigerators
c. Signaling and timing devices
d. Lifts and hoists

1092 Which of the following motors has highest starting torque?
a. Repulsion motor
b. Shaped pole motor
c. Capacitor-start motor
d. Split-phase motor

1093 The rotor of a hysteresis motor is made of_____.
a. Aluminium
b. Cast iron
c. Chrome steel
d. Copper

1094 In a ceiling-fan employing capacitor run motor,_____.
a. Secondary winding surrounds the primary winding
b. Primary winding surrounds the secondary winding
c. Both are usual arrangements
d. None of the above

1095 Two-value capacitor motor finds increased application as compressor motor in small home air-conditioners because_____.
a. It is comparatively cheaper
b. It has almost non-destructible capacitor

c. It has low starting as well as running currents at relatively high power factor
d. It is quiet in operation

1096 A repulsion motor is equipped with_____.
a. Slip rings
b. Commutator
c. Both (a) and (b)
d. None of the above

1097 The speed of a universal motor is usually reduced by using_____.
a. Gearing
b. Belts
c. Brakes
d. Chains

1098 In capacitor start single-phase motors,_____.
a. Current in the starting winding leads the voltage
b. Current in the starting winding lags the voltage
c. Current in the starting winding is in phase with voltage in running winding
d. None of the above

1099 A centrifugal switch is used to disconnect starting winding when motor has_____.
a. Run for about 1 minute
b. Run for about 5 minutes
c. Picked up about 50 to 70 percent of rated speed
d. Picked up about 10 to 25 percent of rated speed

1100 Direction of rotation of a split phase motor can be reversed by reversing the connection of_____.
a. Running winding only
b. Starting winding only
c. Either (a) or (b)
d. Both (a) and (b)

1101 A Schrage motor can run on_____.
a. Zero slip
b. Negative slip
c. Positive slip
d. All of the above

1102 In case of a shaded pole motor the direction of rotation of the motor is_____.
a. From main pole to shaded pole
b. From shaded pole to main pole
c. Either of the above depending on voltage
d. Either of the above depending on power factor

1103 When a D.C. series motor is connected to A.C. supply, the power factor will be low because of_____.
a. High inductance of field and armature circuits
b. Induced current in rotor due to variations of flux
c. Fine copper wire winding
d. None of the above

1104 Which of the following applications always have some load whenever switched on?
a. Vacuum cleaners
b. Fan motors
c. Pistol drills
d. All of the above

1105 The motor used for the compressors is_____.
a. D.C. series motor
b. Shaded pole motor
c. Capacitor-start capacitor-run motor
d. Reluctance motor

1106 Which of the following statements regarding reluctance-start motor is incorrect?
a. It is similar to reluctance motor
b. It is basically an induction motor and not a synchronous one
c. So far as its basic working principle is concerned, it is similar to shaded pole motor
d. The air-gap between rotor and salient poles is non-uniform

1107 If a D.C. series motor is operated on A.C. supply, it will_____.
a. Spark excessively

b. Have poor efficiency
c. Have poor power factor
d. All of the above

1108 Hysteresis motor is particularly useful for high-quality record players and tape-recorders because_____.
a. It revolves synchronously
b. It is not subject to any magnetic or mechanical vibrations
c. It can be easily manufactured in extremely small sizes of up to 1 W output
d. It develops hysteresis torque which is extremely steady both in amplitude and phase

1109 Burning out of windings is due to_____.
a. Short circuited capacitor
b. Capacitor value hiving changed
c. Open circuiting of capacitor
d. None of the above

1110 If a particular application needs high speed and high starting torque, then which of the following motor will be preferred?
a. Universal motor
b. Shaded pole type motor
c. Capacitor start motor
d. Capacitor start and run motor

1111 In a capacitor start and run motors the function of the running capacitor in series with the auxiliary winding is to_____.
a. Improve power factor
b. Increase overload capacity
c. Reduce fluctuations in torque
d. To improve torque

1112 In split-phase motor auxiliary winding is of_____.
a. Thick wire placed at the bottom of the slots
b. Thick wire placed at the top of the slots
c. Thin wire placed at the top of the slots
d. Thin wire placed at the bottom of the slots

1113 Which type of load is offered by cranes and hoists?
a. Gradually varying load
b. Non-reversing, no-load start
c. Reversing, light start
d. Reversing, heavy start

1114 Speed torque characteristic of a repulsion induction motor is similar to that of a D.C._____.
a. Shunt motor
b. Series motor
c. Compound motor
d. Separately excited motor

1115 If the centrifugal switch of a two-value capacitor motor using two capacitors fails to open then_____.
a. Motor will not come up to speed
b. Motor will not carry the load
c. Current drawn by the motor will be excessively high
d. Electrolytic capacitor will, in all probability, suffer break down

1116 Which of the following statements regarding a reluctance motor is incorrect?
a. It cannot be reversed, ordinarily
b. It requires no D.C. field excitation for its operation
c. It is nothing else but a single-phase, salient pole synchronous-induction motor
d. Its squirrel cage-rotor is of unsymmetrical magnetic construction in order to vary reluctance path between stator and rotor

1117 Which of the following motor will have relatively higher power factor?
a. Capacitor run motor
b. Shaded pole motor
c. Capacitor start motor
d. Split phase motor

1118 Which of the following motors is inherently self starting?

a. Split motor
b. Shaded-pole motor
c. Reluctance motor
d. None of these

1119 The motor used on small lathes is usually_____.
a. Universal motor
b. D.C. shunt motor
c. Single-phase capacitor run motor
d. 3-phase synchronous motor

1120 In A.C. series motor compensating winding is employed to_____.
a. Reduce the effects of armature reaction
b. Increase the torque
c. Reduce sparking at the brushes
d. None of the above

1121 In which single-phase motor, the rotor has no teeth or winding?
a. Split phase motor
b. Reluctance motor
c. Hysteresis motor
d. Universal motor

1122 In repulsion motor, maximum torque is developed when_____.
a. Brush axis is at 45° electrical to the field axis
b. Brush axis coincides with the field axis
c. Brush axis is at 90° electrical to the field axis
d. None of the above

1123 Which of the following motors is used in tape-recorders?
a. Hysteresis motor
b. Reluctance motor
c. Capacitor-run motor
d. Universal motor

1124 To reverse the direction of rotation of a capacitor start motor while it is running we should_____.
a. Disconnect motor from the supply till it stops then reconnect it to supply with reversed connection of main or auxiliary winding
b. Disconnect motor from supply and immediately reconnect it to supply with reversed connections of the main winding
c. Reverse the direction of connection of the auxiliary winding and after motor comes to rest then connect auxiliary winding to the supply
d. Reverse the direction of connections of the auxiliary winding and immediately connect it to supply

1125 Locked rotor current of a shaded pole motor is_____.
a. Equal to full load current
b. Less than full load current
c. Slightly more than full load current
d. Several times the full load current

1126 In a capacitor start motor, the phase displacement between starting and running winding can be nearly_____.
a. 10°
b. 30°
c. 60°
d. 90°

1127 Which of the following motors is used in mixes?
a. Repulsion motor
b. Reluctance motor
c. Hysteresis motor
d. Universal motor

1128 A single-phase induction motor is_____.
a. Inherently self-starting with high torque
b. Inherently self-starting with low torque
c. Inherently non-self-starting with low torque
d. Inherently non-self-starting with high torque

1129 The wattage of motor for driving domestic sewing machine will be around
a. 100 to 150 W

b. 40 to 75 W
c. 10 to 30 W
d. 5 to 10 W

1130 A reluctance motor_____.
a. Is self-starting
b. Is constant speed motor
c. Needs no D.C. excitation
d. All of the above

1131 The shaded pole motor is used for_____.
a. High starting torque
b. Low starting torque
c. Medium starting torque
d. Very high starting torque

1132 If a single phase induction motor runs slower than normal, the most likely defect is_____.
a. Worn bearings
b. Short-circuit in the winding
c. Open-circuit in the winding
d. None of the above

1133 A.C. series motor as compared to D.C. series motor has_____.
a. Smaller brush width
b. Less number of field turns
c. More number of armature turns
d. All of the above

1134 If starting winding of a single-phase induction motor is left in the circuit, it will_____.
a. Run faster
b. Spark at light loads
c. Draw excessive current and overheat
d. Run slower

1135 Which of the following motors is used for unity power factor?
a. Hysteresis motor
b. Schrage motor
c. Universal motor
d. Reluctance motor

1136 In a hysteresis motor, the rotor must have
a. Retentivity
b. Resistivity
c. Susceptibility
d. None of the above

1137 Which of the following motors can be run on AC. as well as D.C. supply?
a. Universal motor
b. Repulsion motor
c. Synchronous motor
d. Reluctance motor

1138 A shaded pole motor can be used for_____.
a. Toys
b. Hair dryers
c. Circulators
d. Any of the above

1139 The values of starting capacitor of a fractional horse power motor will be_____.
a. 100 µF
b. 200 µF
c. 300 µF
d. 400 µF

1140 Which of the following motor will give the highest starting torque?
a. D.C. shunt motor
b. Schrage motor
c. Repulsion start and induction run motor
d. Universal motor

1141 In case of high speed universal motor which of the following needs more attention?
a. End play
b. Air gap
c. Insulation in rotor
d. Balancing of rotor

1142 Torque developed by a single phase induction motor at starting is
a. Pulsating
b. Uniform
c. None of the above
d. Nil

1143 Which of the following motors has two separate windings on the motor?
a. Repulsion motor

b. Repulsion induction motor
c. Repulsion start induction run motor
d. None of the above

1144 Which of the following statements regarding repulsion-start induction motor is incorrect?
a. It requires more maintenance of commutator and other mechanical devices
b. It makes quite a bit of noise on starting
c. In fractional horse power motors, it has replaced the capacitor motors
d. It is not easily reversed

1145 Centrifugal switch disconnects the auxiliary winding of the motor at about_____percent of synchronous speed.
a. 30 to 40
b. 70 to 80
c. 80 to 90
d. 100

1146 Which motor is normally free from mechanical and magnetic vibrations?
a. Split phase motor
b. Universal motor
c. Hysteresis motor
d. Shaded pole motor

1147 Single phase induction motor usually operates on_____.
a. 0.6 power factor lagging
b. 0.8 power factor lagging
c. 0.8 power factor leading
d. Unity power factor

1148 In a single phase motor the centrifugal switch
a. Disconnects auxiliary winding of the motor
b. Disconnects main winding of the motor
c. Reconnects the main winding the motor
d. Reconnects the auxiliary winding of the motor

1149 A hysteresis motor works on the principle of_____.
a. Hysteresis loss
b. Magnetization of rotor
c. Eddy current loss
d. Electromagnetic induction

1150 Which of the following motors can be used for unity power factor?
a. Capacitor run motor
b. Shaded pole motor
c. Hysteresis motor
d. Schrage motor

1151 A shaded pole motor does not possess_____.
a. Centrifugal switch
b. Capacitor
c. Commutator
d. All of the above

1152 In a split phase motor,_____.
a. The starting winding is connected through a centrifugal switch
b. The running winding is connected through a centrifugal switch
c. Both starting and running windings are connected through a centrifugal switch
d. Centrifugal switch is used to control supply voltage

1153 Which of the following motors will operate at high power factor?
a. Shaped pole motor
b. Split phase motor
c. Capacitor start motor
d. Capacitor run motor

1154 In split phase motor main winding is of
a. Thin wire placed at the top of the slots
b. Thin wire placed at the bottom of the slots
c. Thick wire placed at the bottom of the slots
d. Thick wire placed at the top of the slots

1155 After the starting winding of a single phase induction motor is

disconnected from supply, it continues to run only on_____.
a. Running winding
b. Rotor winding
c. Field winding
d. Compensating winding

1156 The torque developed by a single-phase motor at starting is_____.
a. More than the rated torque
b. Rated torque
c. Less than the rated torque
d. Zero

1157 In a capacitor start single-phase motor, when capacitor is replaced by a resistance,_____.
a. Torque will increase
b. The motor will consume less power
c. Motor will run in reverse direction
d. Motor will continue to run in same direction

1158 Which of the following single-phase motors has relatively poor starting torque?
a. Universal motor
b. Repulsion motor
c. Capacitor motor
d. All single phase motors have zero starting torque

1159 In a universal motor, the most common cause of brush sparking is_____.
a. Open armature winding
b. Shorted armature winding
c. Shorted field winding
d. All of the above

1160 Which of the following motors is used in a situation where load increases with speed?
a. Induction motor
b. Three-phase series motor
c. Schrage motor
d. Hysteresis motor

1161 The repulsion-start induction-run motor is used because of
a. Good power factor
b. High efficiency
c. Minimum cost
d. High starting torque

1162 Which of the following single-phase motors is suitable for timing and control purposes?
a. Reluctance motor
b. Series motor
c. Repulsion motor
d. Universal motor

1163 In a A.C. series motor armature coils are usually connected to commutator_____.
a. Through resistance
b. Through reactance
c. Through capacitors
d. Solidly

1164 In repulsion motor, direction of rotation of motor_____.
a. Is opposite to that of brush shift
b. Is the same as that of brush shift
c. Is independent of brush shift
d. None of these

1165 The range of efficiency for shaded pole motors is_____.
a. 95% to 99%
b. 80% to 90%
c. 50% to 75%
d. 5% to 35%

1166 The power factor of a single-phase induction motor is usually_____.
a. Lagging
b. Always leading
c. Unity
d. Unity to 0.8 leading

1167 In a two value capacitor motor, the capacitor used for running purposes is
a. Air capacitor
b. Paper spaced oil filled type
c. Ceramic type
d. A.C. electrolytic type

1168 The speed of a universal motor is generally reduced by using
a. Gear trains
b. V-belts

c. Brakes
d. Chains

1169 The electric motor used in portable drills is_____.
a. Capacitor run motor
b. Hysteresis motor
c. Universal motor
d. Repulsion motor

1170 The speed/load characteristics of a universal motor are same as that of_____.
a. A.C. motor
b. D.C. shunt motor
c. D.C. series motor
d. None of the above

1171 In repulsion motor, zero torque is developed when_____.
a. Brush axis is 45° electrical to field axis
b. Brush axis coincides with the field axis
c. Brush axis is 90° electrical to field axis
d. Both (b) and (c)

1172 Which of the following motor will give relatively high starting torque?
a. Capacitor start motor
b. Capacitor run motor
c. Split phase motor
d. Shaded pole motor

1173 In a shaded pole motor, the shading coil usually consist of_____.
a. A single turn of heavy wire which is in parallel with running winding
b. A single turn of heavy copper wire which is short-circuited and carries only induced current
c. A multilayer fine gauge copper wire in parallel with running winding
d. None of the above

1174 If any two phases for an induction motor are interchanged,_____.
a. the motor will run in reverse direction
b. the motor will run at reduced speed
c. the motor will not run
d. the motor will burn

1175 The number of slip rings on a squirrel cage induction motor is usually_____.
a. two
b. three
c. four
d. none

1176 Sparking at the commutator of a D.C. Motor may result in_____.
a. damage to the commutator segments
b. damage to commutator insulation
c. increased power-consumption
d. all of the above

1177 During charging the specific gravity of the electrolyte of a lead acid battery_____.
a. increases
b. decreases
c. remains the same
d. become zero

1178 Electrostatic voltmeter instruments are suitable for_____.
a. A.C. work only
b. D.C. work only
c. Both A.C. And D.C. work
d. none of these

1179 What can be interrupting medium in the contactor?
a. Air at atmospheric pressure
b. SF6 gas
c. Oil
d. All of the above.

1180 What is connected load?
a. Installed electric load in the premises of the consumer
b. Maximum load a consumer draws.
c. Load drawn by a consumers at any instant
d. None of the above.

1181 Keeping in view the cost and the overall effectiveness which of the following circuit breaker is best

suited for H.T capacitor bank switching_____.
a. Vacuum circuit breaker
b. Air blast CB
c. SF_6
d. Oil CB

1182 Earth tester operates on_____.
a. A.C. Only
b. D.C. Only
c. Both A.C. and D.C.
d. None of the above

1183 The loads on distributors systems are generally_____.
a. Balanced
b. Unbalanced
c. Either of the above
d. none of the above

1184 What is demand factor?
a. Average load to maximum demand.
b. Maximum demand to connected load.
c. Connected load to maximum demand.
d. Maximum demand to average load.

1185 Which regulation of Central Electricity Authority (Measures relating to safety and electric supply) Regutation-2010 is applicable to service lines?
a. Regulation 30
b. Regulation 33
c. Regulation 13
d. all of the above

1186 The use of strain type insulators is made where the conductors are
a. dead ended
b. at intermediate anchor towers
c. any of the above
d. none of the above

1187 Branch circuit must not feed more than_____point.
a. 5
b. 8
c. 10
d. 12

1188 If a power cable and a communication cable are to run parallel the minimum distance between the two to avoid interference, should be_____.
a. 20 cm
b. 10 cm
c. 50 cm
d. 400 cm

1189 Most of the generators in thermal power plants run at_____.
a. 3000 rpm
b. 1500 rpm
c. 1000 rpm
d. 750 rpm

1190 Which-among these is a type of internal wiring?
a. Cleat wiring
b. Conduit wiring
c. CTS wiring
d. all of these

1191 What is the maximum current up to which fuse can be used?
a. 25 A
b. 50 A
c. 75 A
d. 100 A

1192 Over current protection of motor is provided by_____.
a. Cartridge fuses
b. high resistance fuses
c. Over-current relay
d. all of the above

1193 In transmission system a feeder feeds power to
a. Service mains
b. Generating stations
c. Distributor
d. All of the above.

1194 Which of the following are air-break switching devices?
a. Isolator
b. Limit switch
c. Earthing switch
d. All of the above