

- c. Center type analogue meter
d. All of these
- 1052 Which of the following is/are obtain by performing Open Circuit test of transformer?
a. No Load Current
b. No Load Losses
c. X_0 and R_0 (Equivalent Circuit parameters)
d. All of these
- 1053 Which of the following is/are obtain by performing Short Circuit test of transformer?
a. impedance voltage/short-circuit impedance
b. load loss
c. R_{01} and X_{01} (equivalent circuit parameter)
d. All of these
- 1054 Normally Supply voltage is applied on _____ side during Open Circuit test on the transformer.
a. LV
b. HV
c. Both side (one by one)
d. All of these
- 1055 Normally Supply voltage is applied on _____ side during Short Circuit test on the transformer.
a. LV
b. HV
c. both side (one by one)
d. None of these
- 1056 Which of the following is/are known as a dielectric test of the transformer?
a. Lightning & Switching impulse test
b. Separate source AC withstand voltage test
c. Induced AC voltage test
d. All of these
- 1057 Which of the following is/are known as impulse test of the transformer?
a. Lightning & Switching
b. Separate source AC withstand voltage test
c. Induced AC voltage test
d. All of these
- 1058 Basic impulse level (BIL) of a power system is define as _____.
a. Minimum insulation impulse withstand voltage of any power equipment or apparatus
b. Maximum power frequency withstand voltage of any power equipment for apprentice
c. Minimum power frequency withstand voltage of any apparatus or power equipment
d. Peak value of highest system voltages
- 1059 The insulation of modern EHV and UHV lines is designed based on _____.
a. Corona
b. Radio interface
c. Lightning voltage
d. Switching voltage
- 1060 Power system insulation problem involves
a. Selection of basic insulation level of system equipment and lightning arrester
b. Determination of line insulation
c. Capacitance of earth and subsequent grounding
d. None of above
- 1061 The protection against direct lightning strokes and high voltage steep waves is provided by _____.
a. Ground wires
b. Lightning arresters
c. Lightning arresters and ground wires
d. Earthing of neutral
- 1062 Which of the following factors should be considered the design of a transmission line against lightning with ground wire?
a. Mechanical strength of ground wire
b. Clearance between line conductor and ground wire

- c. Clearance between line conductor and earth
d. All of above
- 1063 Lighting arresters are used in power system to protect electrical equipments against_____.
- a. Direct strokes of lightning
b. Over-voltages due to indirect lightning stroke
c. Power frequency over-voltages
d. Over-currents due to lightning
- 1064 Impulse ratios of insulators and lightning arresters should be_____.
- a. Both low
b. Both high
c. High and low respectively
d. Low and high respectively
- 1065 Which of the following is the protective device against lightning over-voltages?
- a. Rod gaps
b. Surge absorbers
c. Horn gaps
d. All of above
- 1066 Overhead ground wires are used to protect a transmission line against_____.
- a. Line-to-ground faults
b. Arcing earths
c. Voltage surges due to direct lightning stroke
d. High voltage oscillations due to switching
- 1067 An overhead transmission line is provided with earth wire for protection against_____.
- a. Switching surge
b. Lightning surge
c. Power frequency over voltage
d. All of above
- 1068 In a thyrite lightning arrester the resistance_____.
- a. Varies linearly with the applied voltage
b. Increases with the applied voltage
- c. Decreases linearly with the applied voltage
d. Is high at low current and low at high current
- 1069 A lightning arrester provides_____.
- a. Low impedance path
b. High impedance path
c. Low resistance path
d. High resistance path between line and earth during operation
- 1070 Surge absorbers are used for protection against_____.
- a. High voltage low frequency oscillations
b. High voltage high frequency oscillations
c. Low voltage high frequency oscillations
d. Low voltage low frequency oscillations
- 1071 Surge modifiers are employed for_____.
- a. Reducing the steepness of wave-front
b. Reducing the current of wave-front
c. Reducing the voltage of wave-front
d. Modify the shape of the wave-front
- 1072 A thyrite type lightning arrester_____.
- a. Blocks the surge voltage appearing in a line
b. Absorbs the surge voltage appearing in a line
c. Offers a low resistance path to the surge appearing in a line
d. Returns the surge back to the source
- 1073 A lightning arrester connected between the line and earth in a power system_____.
- a. Protects the terminal equipment against travelling surges
b. Protects the terminal equipment against direct lightning stroke
c. Suppresses high frequency oscillations in the line

- d. Reflects back the travelling waves approaching it
- 1074 Which of the following is a non-linear diverter?
- Expulsion type arrester
 - Valve type arrester
 - Electrolytic type arrester
 - Rod gap arrester
- 1075 A valve type lightning arrester in a substation should be placed_____.
- Close to the circuit breaker
 - Close to the transformer
 - Away from the transformer
 - None of above
- 1076 Surge absorber_____the energy of travelling waves.
- Absorbs
 - Reflects
 - Diverts
 - Partly absorbs and partly diverts
- 1077 Coupling factor of a ground wire can be increased by_____.
- Reducing the footing impedance
 - Increasing the ground wire size
 - Using cantilever rods on the crossing along-with the areas of ground wire
 - All of above
- 1078 In the presence of corona, electrostatic coupling _____ and electromagnetic coupling _____.
- Decrease, increases
 - Increases, decrease
 - Increases, remains same
 - Remains same, decrease
- 1079 When a transmission line is energized,_____propagate on it.
- Voltage wave only
 - Current wave only
 - Both (a) and (b)
 - None of above
- 1080 When a wave propagate on a transmission line, it suffers reflection several times at_____.
- Load end
 - Sending end
 - Sending end and other end
 - None of above
- 1081 Travelling voltage wave and current wave have the same waveforms and travel together along the transmission line at a velocity_____.
- Of sound
 - Of light
 - Slightly lesser than that of light
 - Slightly lesser than that of sound
- 1082 For a transmission line the standing wave ratio is the ratio of_____.
- Peak voltage to RMS voltage
 - Maximum current to minimum current
 - Maximum voltage to minimum voltage
 - Maximum impedance to minimum impedance
- 1083 The steepness of the wave-front can be reduced by connecting_____.
- An inductor in series with the line
 - A capacitor between line and earth
 - An inductor between line and earth or a capacitor in series with the line
 - Both (a) and (b)
- 1084 If the load impedance is 100 ohm and input impedance is 25 ohm, then the characteristic impedance of the transmission line is_____.
- 40 Ω
 - 50 Ω
 - 60 Ω
 - 70 Ω
- 1085 The insulation strength of an EHV transmission line is mainly governed by_____.
- Load power factor
 - Switching over-voltages
 - Harmonics

- 1086 d. Corona
The insulation coordination for UHV lines above 500 kV is done based on_____.
- Lightning surges
 - Switching surges
 - Both (a) and (b)
 - None of above
- 1087 In comparison to line insulation, the insulation level of the station equipment is
- Less
 - More
 - Equal
 - Not directly related to each other
- 1088 A lightning arrester is usually located nearer to_____.
- Bus bar
 - Transformer
 - Circuit breaker
 - Isolator
- 1089 Which system will need the lightning arrester of least voltage rating?
- Solid grounded neutral system
 - Resistance grounded neutral system
 - Reactance grounded neutral system
 - None of above
- 1090 Which of the following is used for providing protection against incoming surges?
- Silicon oxide varistor
 - Germanium oxide varistor
 - Metal oxide varistor
 - All of above
- 1091 Angle of zone of protection of lightning protection system is approximately_____.
- 10°
 - 20°
 - 45°
 - 70°
- 1092 The property of surge protection device is to have_____ V-I characteristics.
- Linear
 - Highly linear
 - Non-linear
 - Highly non-linear
- 1093 A grounding connection to earth from lightning protection system should be made at _____corners of the structure.
- Any one
 - Any two
 - Diagonal
 - None of above
- 1094 The zone of protection i.e. surrounding area that a lightning protection system protects is approximately _____ times the height of building protected.
- 2 times
 - 3 times
 - 4 times
 - 5 times
- 1095 An air termination should exceed a minimum of_____above the object that is to be protected.
- 10 Inches
 - 15 Inches
 - 20 Inches
 - 25 Inches
- 1096 Electrical arc occurs when the insulation is damaged and there is sufficient_____between the conductors.
- Potential
 - Current
 - Power
 - All of above
- 1097 The arc will have _____ on the nearby equipment.
- Thermal stresses only
 - Mechanical stresses only
 - Both (a) and (b)
 - None of above
- 1098 When electric arc occurs, the amount of energy measured on a

- surface, a certain distance from the source is called_____.
- Incident energy
 - Radiant energy
 - Conduction energy
 - Convection energy
- 1099 Insulation resistance of HV circuit breaker is more than_____.
- 100 Ω
 - 500 k Ω
 - 1 M Ω
 - 100 M Ω
- 1100 Switching surges may be caused by_____.
- Closing of unchanged line
 - Load shedding at receiving end of line
 - Switching of magnetizing current
 - All of above
- 1101 Which of the following is the standard defining the Guide for testing three phase induction motors (First Revision)?
- IS 2026:Part_1-10
 - IS 4029: 2010
 - IS 13956:1994
 - All of these
- 1102 Which of the following is the standard defining the Guide for Testing Synchronous Machines?
- IS 2026:Part_1-10
 - IS 7132:1973
 - IS 13956:1994
 - IS 4029:2010
- 1103 Which of the following is the standard defining the Guide for Testing of Direct Current (dc) Machines?
- IS 2026:Part_1-10
 - IS 9320:1979
 - IS 13956:1994
 - IS 4029:2010
- 1104 Which of the following is not the standard defining the Guide for testing rotating machine?
- IS 4029:2010
 - IS 7132:1973
 - IS 9320:1979
 - IS 2026:Part_1-10
- 1105 Which of the following is defined as the Indian Standard?
- BIS
 - ISO
 - IEEE
 - NEEMA
- 1106 As per IS 4029:2010-Guide for Testing Three Phase Induction Motors. High Voltage test is _____.
- Type Test
 - Routine Test
 - Special Test
 - Commissioning Test
- 1107 As per IS 4029:2010-Guide for Testing Three Phase Induction Motors. High Voltage test is generally performed at_____.
- manufacturer premises
 - Third-Party premises
 - Consumer premises
 - None of these
- 1108 As per IS 4029:2010-Guide for Testing Three Phase Induction Motors. High Voltage test in special case performed at_____if considered necessary after _____.
- at site, Drying
 - at site, No-load test
 - manufacturer premises, Drying
 - manufacturer premises, temperature rise test
- 1109 As per IS 4029:2010-Guide for Testing Three Phase Induction Motors. High Voltage test in special case performed at the site. The test voltage shall be_____percent of the standard test voltage.
- 120
 - 100
 - 80
 - 115

- 1110 HV test on the three-phase induction motor is also known as
- Dielectric Test
 - Insulation Test
 - Both of these
 - None of these
- 1111 HV test should be conducted if the insulation resistance is _____ the value defined in IS 4722.
- greater than
 - less than
 - for any value
 - not depend on IR value
- 1112 The high voltage test of three-phase induction motor shall be applied between the _____.
- windings and the frame
 - each phase and the frame
 - both windings and the frame & each phase and the frame
 - each phase and slip ring
- 1113 Which of the following is/are not the test condition of the HV test on three-phase induction motor?
- the core & windings not under test are connected to the frame (Earthed)
 - only to a new and completed motor with all its parts in place under conditions equivalent to normal working conditions
 - only after the IR test get successful
 - when machine rotates at no-load
- 1114 Which of the following is/are the specification of the HV test on three-phase Induction motor?
- test voltage should be of power frequency
 - test voltage should be of a sine waveform
 - the test voltage shall be commenced at the voltage of not more than one-half of the full test voltage
 - All of these
- 1115 In the HV test of three-phase induction motor, The full test voltage shall then be maintained for _____.
- 1 min
 - 2 min
 - 1.5 min
 - 30 sec
- 1116 Normally the test voltage applied in HV test of stator winding of three-phase IM is _____.
- 1000 V + twice the rated voltage with a minimum of 1 500 V
 - 1000 V + twice the open circuit standstill voltage as measured between slip rings or secondary terminals
 - 1000 V + four times the open circuit standstill secondary voltage
 - All of these
- 1117 Normally the test voltage applied in HV test of rotor winding of three-phase IM is _____.
- 1000 V + twice the open circuit standstill voltage as measured between slip rings or secondary terminals
 - 1000 V + twice the rated voltage with a minimum of 1500 V
 - 1000 V + four times the open circuit standstill secondary voltage
 - All of these
- 1118 The test voltage applied in the HV test of rotor winding of three-phase IM when it is subjected to be reversed or braked by reversing the primary supply while the motor is running is _____.
- 1000 V + twice the rated voltage with a minimum of 1500 V
 - 1000 V + twice the open circuit standstill voltage as measured between slip rings or secondary terminals
 - 1000 V + four times the open circuit standstill secondary voltage
 - All of these

- 1119 What should be the reason? Motor fails to start_____.
- Supply phases open circuited
 - Open circuited starters
 - Load torque is much higher than starting torque of the motor
 - All of these
- 1120 What should be the reason? At the start, only thermal overload operates.
- Contactors warned out
 - Excessive load torque on starting
 - Voltage very low
 - All of these
- 1121 What should be the reason? Thermal overload protection operates while the motor is running_____.
- Frequency very high
 - One phase block making single phasing
 - Ventilation not proper
 - All of these
- 1122 What should be the reason? Motor produce humming sound.
- Opening of one phase
 - conductors shorted
 - Earth fault
 - All of these
- 1123 What should be the reason? Motor runs at a slow speed_____.
- Heavy overload
 - low supply voltage
 - High Rotor resistance (rotor starter not removed properly)
 - All of these
- 1124 What should be the reason? Motor runs at a very fast speed _____.
- High Supply Voltage
 - High Supply frequency
 - Load through out
 - All of these
- 1125 The motor in close is used for collieries, the chemical plant is_____.
- Flame proof type
 - Splash proof type
 - Totally enclosed type
 - Pipe ventilated type
- 1126 The motor enclosure used in the wood-working industry is_____.
- Protected type
 - Totally enclosed fan cooled type
 - Flame proof type
 - Splash proof type
- 1127 The motor enclosure used for industrial purposes is _____.
- Protected type
 - Drip proof type
 - Totally enclosed type
 - Open type
- 1128 15 minute rated motors are suitable for_____.
- Light duty cranes
 - Medium duty cranes
 - Heavy duty cranes
 - All of the above
- 1129 For medium-duty cranes the short time rating motor used is_____.
- 10 minutes
 - 15 minutes
 - 30 minutes
 - any of the above
- 1130 While selecting a motor for air-conditioner the feature of utmost importance is_____.
- Type of enclosure
 - Type of bearing
 - Noise
 - Power transmission arrangement
- 1131 Light duty cranes are generally used in_____.
- Power houses
 - Pumping stations
 - Automobile workshops
 - All of these
- 1132 The range of ratings of electric motor used for rolling mills is of the order of_____.
- 10 to 25 kW
 - 25 to 85 kW

- c. 85 to 400 kW
d. 400 to 1000 kW
- 1133 Which of the following Drying out method is note used in rotating machines?
a. Incandescent lamp
b. Heating chamber
c. Circulating current
d. Circulating Oil
- 1134 When do we need drying out of the rotating machine?
a. the machine remains ideal for a long time
b. every 2 year
c. when the insulation resistance test shows a very low value
d. when the insulation resistance test shows a very low value and no sign of insulation physical damaged
- 1135 Which of the following required during drying out process?
a. Insulation Resistance & Temperature measuring Device
b. Clock
c. Heat source
d. All of these
- 1136 Which of the following method is known as the uniform heating method of drying out?
a. Radiating lamp
b. Heat Chamber
c. Circulating current
d. All of these
- 1137 Which of the following is/are the factor to be considered while selecting a motor for the particular service?
a. Supply System and Applicable Standard
b. Torque, Speed and Load Characteristics
c. Duty, Noise level
d. All of these
- 1138 Which of the following is/are the factor to be considered while selecting a motor for the particular service?
a. Environment condition and location
b. Enclosure & Cooling requirement
c. Cost
d. All of these
- 1139 In which of the following enclosure we get the best cooling and poor protection?
a. Open type
b. Screen Type
c. Totally enclosed type
d. flame proof type
- 1140 In which of the following enclosure we get the poor cooling and best protection?
a. Open type
b. Screen Type
c. Totally enclosed type
d. Splash proof type
- 1141 In which of the following enclosure, we cannot stop water from entering into the machine?
a. Open type
b. Protected type
c. Screen type
d. All of these
- 1142 What is IP code in rotating machine?
a. Degree of Protection
b. Degree of cooling
c. Degree of insulation
d. All of these
- 1143 The designation used for the _____ consists of the letters IP followed by two characteristic numerals signifying conformity with the conditions.
a. degree of protection
b. degree of cooling
c. degree of insulation
d. All of these
- 1144 What is the indication of the first digit in IP code?
a. Degree of protection against contact or entry of human body parts and solid object

- b. Degree of protection against ingress of water
 c. Degree of protection against ingress of temperature
 d. All of these
- 1145 What is the indication of the second digit in IP code?
 a. Degree of protection against contact or entry of human body parts and solid object
 b. Degree of protection against ingress of water
 c. Degree of protection against ingress of temperature
 d. All of these
- 1146 In induction heating _____ is abnormally high.
 a. Phase angle
 b. Frequency
 c. Current
 d. Voltage
- 1147 For heating element high resistivity material is chosen to _____.
 a. Reduce the length of heating element
 b. Increase the life of the heating element
 c. Reduce the effect of oxidation
 d. Producing large amount of heat
- 1148 Induction heating takes place in which of the following?
 a. Insulating materials
 b. Conducting materials which are magnetic
 c. Conducting materials which are non-magnetic
 d. Conducting materials which may or may not be magnetic
- 1149 In resistance heating highest working temperature is obtained from heating elements made of _____.
 a. Nickel copper
 b. Nichrome
 c. Silicon carbide
 d. Silver
- 1150 In the indirect resistance heating method, maximum heat transfer takes place by
 a. Radiation
 b. Convection
 c. Conduction
 d. Any of the above
- 1151 _____ has the highest value of thermal conductivity.
 a. Copper
 b. Aluminium
 c. Brass
 d. Steel
- 1152 Which of the following heating methods has maximum power factor?
 a. Arc heating
 b. Dielectric heating
 c. Induction heating
 d. Resistance heating
- 1153 For the transmission of heat from one body to another _____.
 a. Temperature of the two bodies must be different
 b. Both bodies must be solids
 c. Both bodies must be in contact
 d. . At least one of the bodies must have some source of heating
- 1154 Heat transfer by condition will not occur when _____.
 a. Bodies are kept in vacuum
 b. Bodies are immersed in water
 c. Bodies are exposed to thermal radiations
 d. Temperatures of the two bodies are identical
- 1155 Which of the following methods of heating is not dependent on the frequency of supply?
 a. Induction heating
 b. Dielectric heating
 c. Electrical resistance heating
 d. All of the above
- 1156 It is desirable to operate the arc furnaces at power factor of _____.

- a. Zero
b. 0.707 lagging
c. Unity
d. 0.707 leading
- 1157 Induction heating process is based on which of the following principles?
a. Thermal ion release principal
b. Nucleate heating principal
c. Resistance heating principal
d. Electromagnetic induction principle
- 1158 Which of the following has the highest value of thermal conductivity?
a. Water
b. Steam
c. Solid ice
d. Melting ice
- 1159 In an electric press mica is used_____.
a. As an insulator
b. As a device for power sector improvement
c. For dielectric heating
d. For induction heating
- 1160 The temperature inside a furnace is usually measured by which of the following?
a. Optical Pyrometer
b. Mercury thermometer
c. Alcohol thermometer
d. Any of the above
- 1161 Hysteresis loss and eddy current loss are used in_____.
a. Induction heating of steel
b. Dielectric heating
c. Induction heating of brass
d. Resistance heating
- 1162 Ajax Wyatt furnace he's started when_____.
a. It is filled below core level
b. It is filled above core level
c. It is fully empty
d. None of the above
- 1163 In direct arc furnace which of the following has highest value?
a. Current
b. Voltage
c. Power factor
d. All of the above
- 1164 Direct arc furnaces have which of the following power factors?
a. Unity
b. Low, lagging
c. Low, leading
d. Any of the above
- 1165 _____is used for heating non-conducting materials
a. Eddy current heating
b. Arc heating
c. Induction heating
d. Dielectric heating
- 1166 A rotary converter operates at a_____.
a. Low power factor
b. High power factor
c. Zero power factor
d. None of the above
- 1167 With a motor converter it is possible to obtain DC voltage only up to_____.
a. 200 to 400 v
b. 600 to 800 v
c. 1000 to 1200 v
d. 1700 to 2000 v
- 1168 A rotary converter is a single machine with
a. One armature and one field
b. Two armatures and one field
c. One armatures and two fields
d. None of the above
- 1169 In a single phase rotary converter the number of slip rings will be_____.
a. Two
b. Three
c. Four
d. Five
- 1170 Which of the following methods may be used to convert AC system to DC?

- a. Rectifiers
b. Motor converters
c. Motor generator set
d. All of the above
- 1171 A rotary converter in general construction and design is more or less like_____.
- a. Transformer
b. An induction motor
c. An alternator
d. Any DC machine
- 1172 Which of the following is reversible in action?
- a. Motor generator set
b. Motor converter
c. Rotary converter
d. Any of the above
- 1173 In which of the following equipment direct current is needed?
- a. Telephones
b. Relays
c. Time switches
d. All of the above
- 1174 In a rotary converter are much are parents are _____.
- a. DC only
b. AC only
c. Partly AC and partly DC
d. None of the above
- 1175 A rotary converter combines the function of_____.
- a. An induction motor and a DC generator
b. A synchronous motor and a DC generator
c. A dc series motor and a DC generator
d. None of the above
- 1176 In mercury arc rectifier positive ions are attracted towards_____.
- a. Anode
b. Cathode
c. Shell bottom
d. Mercury pool
- 1177 The internal efficiency of a mercury arc rectifier depends on_____.
- a. Voltage only
b. Current only
c. R.M.S. value of current
d. Voltage and current
- 1178 The voltage drop at anode, in a mercury arc rectifier is due to_____.
- a. Self restoring property of mercury
b. High ionization potential
c. Energy spent in overcoming the electrostatic field
d. High temperature inside the rectifier
- 1179 The ionization potential of mercury is approximately_____.
- a. 5.4 V
b. 8.8 V
c. 10.4 V
d. 16.4 V
- 1180 To produce cathode spot in a mercury arc rectified_____.
- a. Anode is heated
b. Tube is evacuated
c. An auxiliary electrode is used
d. Low mercury vapour pressures are used
- 1181 Mercury, in arc rectifiers, is chosen for cathode because_____.
- a. It's ionization potential is relatively low
b. Its atomic weight is quite high
c. Its boiling point and specific heat are low
d. All of the above
- 1182 The cathode voltage drop in a mercury arc rectifier is due to_____.
- a. Expenditure of energy in ionization
b. Surface resistance
c. Expenditure of energy in overcoming the electrostatic field
d. Expenditure of energy in liberating electrons from the mercury
- 1183 The advantages of mercury arc rectifier are that_____.

- a. It is light in weight and occupies small floor space
 b. It has high efficiency
 c. It has high overload capacity
 d. All of the above
- 1184 The potential drop in the arc in a mercury arc rectifier varies_____.
- a. 0.05 to 0.2 V per cm length of the arc
 b. 0.5 to 1.5 V per cm length of the arc
 c. 2 V to 3.5 V per cm length of the arc
 d. None of the above
- 1185 If cathode and anode connections in mercury arc rectifier are interchanged_____.
- a. The rectifier will not operate
 b. Internal losses will be reduced
 c. Both ion and electron streams will move in the same direction
 d. The rectifier will operate at reduced efficiency
- 1186 A mercury arc rectifier possesses_____regulation characteristics
- a. Straight line
 b. Curved line
 c. Exponential
 d. All of the alarms
- 1187 In a mercury arc rectifier _____flow from anode to cathode
- a. Ions
 b. Electrons
 c. Ions and electrons
 d. Any of the above
- 1188 In a mercury arc rectifier characteristic blue luminosity is due to_____.
- a. Colour of mercury
 b. Ionization
 c. High-temperature
 d. Electron streams
- 1189 In a three-phase mercury arc rectifier anode conducts for_____.
- a. One third of a cycle
 b. One fourth of a cycle
 c. One half of a cycle
 d. Two third of a cycle
- 1190 Which of the following mercury arc rectifier will deliver least undulating current?
- a. Six phase
 b. Three phase
 c. Two phase
 d. Single phase
- 1191 Which of the following is the loss within the mercury arc rectifier chamber?
- a. Voltage drop in arc
 b. Voltage drop at the anode
 c. Voltage drop at the cathode
 d. All of the above
- 1192 The efficiency of an electrolytic rectifier is nearly_____.
- a. 80%
 b. 70%
 c. 60%
 d. 40%
- 1193 A commuting rectifier consists of commutator driven by
- a. An induction motor
 b. A synchronous motor
 c. A series motor
 d. A shunt motor
- 1194 The efficiency of the copper oxide rectifier exceeds_____.
- a. 90 to 95%
 b. 85 to 90%
 c. 70 to 80%
 d. 65 to 75%
- 1195 Selenium rectifier can be operated at temperatures as high as_____.
- a. 25°C
 b. 40°C
 c. 60°C
 d. 75°C

- 1196 Ageing of a selenium rectifier may change the output voltage by_____.
- 5 to 10%
 - 15 to 20%
 - 25 to 30%
 - None of the above
- 1197 Which off the following rectifiers are primarily used for charging of low-voltage batteries from AC supply?
- Mechanical rectifiers
 - Copper oxide rectifiers
 - Selenium rectifiers
 - Electrolytic rectifiers
- 1198 Which of the following rectifiers have been used extensively in supply direct current for electroplating_____.
- Copper oxide rectifiers
 - Selenium rectifiers
 - Mercury arc rectifiers
 - Mechanical rectifiers
- 1199 The applications of selenium rectifiers are usually limited to potential of _____.
- 10 V
 - 30 V
 - 60 V
 - 100 V
- 1200 In a mercury arc rectifier fire the anode is usually made of_____.
- Copper
 - Aluminium
 - Silver
 - Graphite
- 1201 Cross-wire welding is_____.
- Multi-spot welding process
 - Continuous spot welding process
 - Used to form mesh
 - Used where additional strength is desired
 - None of the above
- 1202 Projection welding is_____.
- Multi-spot welding process
 - Continuous spot welding process
 - Used to form mesh
 - Used to make cantilevers
- 1203 Seam-welding is_____.
- Multi-spot welding process
 - Continuous spot welding process
 - Used to form mesh
 - Used for welding cylindrical objects
- 1204 Thermit welding is a form of_____.
- Resistance welding
 - Gas welding
 - Fusion welding
 - Forge welding
 - Arc welding
- 1205 TIG welding is best suited for welding_____.
- Mild welding
 - Stainless steel
 - Carbon steel
 - Silver
 - Aluminium
- 1206 Submerged arc welding is_____.
- A process which uses a mixture of iron oxide and granular aluminium
 - Accomplished by maintaining a hot molten metal pool between plates
 - A process in which arc is maintained under a blanket of flux
 - All of the above
- 1207 The electro slag welding is_____.
- A process which uses a mixture of iron oxide and granular aluminium
 - Accomplished by maintaining a hot molten metal pool between plates
 - A process in which arc is maintained under a blanket of flux
 - There is nothing called electro slag
- 1208 Arc-welding uses following electric supply_____.
- A.C.
 - D.C.
 - Both AC and DC
 - Spiral waveform
- 1209 The most commonly used flame in gas welding is_____.
- Neutral
 - Oxidizing

- c. Carburizing
d. All of the above
- 1210 Thermit welding_____.
- A process which uses a mixture of iron oxide and granular aluminium
 - Accomplished by maintaining a hot molten metal pool between plates
 - A process in which arc is maintained under blanket of flux
 - In no welding process
- 1211 Carbon arc welding is_____.
- A process which uses a mixture of iron oxide and granular aluminium
 - Accomplished by maintaining a hot molten metal pool between plates
 - Used to weld carbon rods
 - None of the above
- 1212 In inter gas arc welding following is used for welding magnesium_____.
- No-combustible electrode in combination with helium and current
 - Combustible electrodes and argon in combination with current
 - Straight polarity current
 - Carbon dioxide, because of its excellent penetration and high speed
- 1213 In inter gas arc welding following is used for welding aluminium _____.
- No-combustible electrode in combination with helium and current
 - Combustible electrodes and argon in combination with current
 - Straight polarity current
 - Carbon dioxide, because of its excellent penetration and high speed
- 1214 In reverse polarity welding_____.
- Electrode holder is connected to the negative and work to positive
 - Electrode holder is connected to the positive and work to negative
 - Work is positive and holder is earthed
 - Holder is positive and work is earthed
 - Work is negative and holder is earthed
- 1215 Equipment is used for arc welding a material by carbon electro_____.
- welding set
 - Rectifier
 - Motor generator
 - welding set with straight polarity
 - welding set with reverse polarity
- 1216 Which of the following is strongest for brazing joints?
- Butt
 - Scarf (inclined)
 - Lap
 - All are equally strong
 - Strength depends on other factors
- 1217 Which of the following carbon steel is most weldable?
- 0.15 % carbon steel
 - 0.30 % carbon steel
 - 0.50 % carbon steel
 - 0.75 % carbon steel
 - 1.00 % carbon steel
- 1218 The temperature of plasma torch is of the order of_____.
- 1000 °C
 - 5000 °C
 - 10000 °C
 - 33000 °C
 - 75000 °C
- 1219 Arc welding in arc welding should be nearly equal to_____. (Diameter of electrode rod -d)
- d
 - 1.5 d
 - 2 d
 - 3 d
 - 4 d
- 1220 Arc length in arc welding should be equal to_____.
- Half the diameter of electrode rod

- b. Rod diameter
c. Twice the rod diameter
d. 2.5 times the rod diameter
e. None of the above
- 1221 Arc stability is better with_____.
- a. AC welding
b. DC welding
c. Both AC with DC welding
d. Specially designed wave forms
e. Rectified supply
- 1222 In arc welding, if arc is too short, it will result in_____.
- a. Electrode sticking to the base metal and base metal not melting and bead resting on top of the work, leading to poor fusion and gas and slag holes
b. Formation of large globules in an irregular pattern because of wandering of arc, leading of poor fusion with base metal
c. Arc extinction
d. Operator hazard
e. No welding
- 1223 In arc welding, if arc is too long, it will result in_____.
- a. Electrode sticking to the base metal and base metal not melting and bead resting on top of the work, leading to poor fusion and gas and slag holes
b. Formation of large globules in an irregular pattern because of wandering of arc, leading of poor fusion with base metal
c. Arc extinction
d. Operator hazard
e. No welding
- 1224 Too low welding current in arc welding would result in_____.
- a. Excessive piling up of weld metal, poor penetration, wasted electrodes
b. Excessive spatter, under cutting along edges, irregular deposits, wasted electrodes
c. Too small bead, weak weld, and wasted electrodes
d. None of the above
- 1225 Too high welding current in arc welding would result in_____.
- a. Excessive piling up of weld metal, poor penetration, wasted electrodes
b. Excessive spatter, under cutting along edges, irregular deposits, wasted electrodes
c. Too small bead, weak weld, and wasted electrodes
d. None of the above
- 1226 Too fast welding speed in arc welding would result in_____.
- a. Excessive piling up of weld metal, poor penetration, wasted electrodes
b. Excessive spatter, under cutting along edges, irregular deposits, wasted electrodes
c. Too small bead, weak weld, and wasted electrodes
d. None of the above
- 1227 The melting point of the filler metal in brazing should be above_____.
- a. 420° C
b. 820° C
c. 1020° C
d. 1200° C
e. 1500° C
- 1228 Too slow welding speed in arc welding would result in_____.
- a. Excessive piling up of weld metal, poor penetration, wasted electrodes
b. Excessive spatter, under cutting along edges, irregular deposits, wasted electrodes
c. Too small bead, weak weld, and wasted electrodes
d. Excessive piling up of weld metal, overlapping without penetration of edges, wasted electrodes
- 1229 In resistance welding the electrode material is made of_____.
- a. Carbon steel
b. Stainless steel
c. Copper
d. High speed steel

- 1230 Which type of electrode is used in submerged arc welding_____.
- Bare rods
 - Coated electrodes
 - Core wires
 - Copper electrodes
- 1231 Seam welding is_____.
- Arc welding
 - Multi spot welding
 - Continuous welding
 - Used for forming sound bars
 - Gas welding
- 1232 Flash butt welding is_____.
- Gas welding
 - Arc welding with straight polarity
 - Arc welding with reverse polarity
 - Resistance welding
- 1233 The suitable welded material used in TIG welding is_____.
- Aluminium
 - Stainless steel
 - Magnesium
 - All of the above
- 1234 The following welding process uses consumable electrodes_____.
- TIG
 - MIG
 - Thermit
 - Gas
- 1235 Preheating is essential in welding for_____.
- High speed steel
 - Stainless steel
 - Cast iron
 - German silver
- 1236 The phenomenon of weld decay occurs in_____.
- Cast iron
 - Brass
 - Bronze
 - Stainless steel
 - Carbon steel
- 1237 Interconnected power system is represented by_____.
- Electrical Network
 - Electrical Grid
 - Electrical System
 - None of above
- 1238 Advantage of Interconnected Power System is_____.
- Use of old plants
 - Increase diversity factor
 - Reduced capital and operating cost
 - All of above
- 1239 Disadvantage of interconnected power system is_____.
- Expensive tie line
 - Economical operation
 - Increase the reliability of power system
 - All of the above
- 1240 Which is policy making agency in India at central level
- Central Electricity Regulatory commission (CERC)
 - Central Electricity Authority (CEA)
 - Power Exchange
 - State Government
- 1241 Who is the power system operator at center level?
- Regional load dispatch center
 - Area load dispatch center
 - State load dispatch center
 - National load dispatch center
- 1242 The geometrical interconnection of elements of power system is called_____.
- Node
 - Graph
 - Branch
 - Line
- 1243 In a Graph, The line components are called_____.
- Transmission line
 - Node
 - Branch
 - None of the above
- 1244 Nodes can be incident to _____ Branches.
- One
 - Two

- c. One or more
d. Infinite
- 1245 A tree is_____.
- a connected sub-graph of a network which consists of all the nodes of original graph but no closed path
 - a connected graph of a network with no closed path
 - a connected sub-graph of a network which consists of all the nodes of original graph with closed path
 - All of them
- 1246 If a tree contain 'n' nodes then it has_____branches
- n-1
 - n+1
 - n
 - 2n
- 1247 Co-tree of a graph is
- Set of all branch in a given tree
 - Set of all the links in a given tree
 - Sets of all the node in given tree
 - None of above
- 1248 A process is a_____.
- single thread of execution
 - program in the execution
 - program in the memory
 - task
- 1249 The word processing feature that catches most random typographical errors and misspellings is known as _____.
- Grammar checker
 - Spell checker
 - Word checker
 - None of the these
- 1250 What is smallest unit of the information?
- A bit
 - A byte
 - A block
 - A nibble
- 1251 What is the decimal equivalent of the binary number 10111?
- 21
- 39
 - 42
 - 23
- 1252 What is the term for a temporary storage area that compensates for differences in data rate and data flow between devices?
- Buffer
 - Bus
 - Channel
 - Modem
- 1253 How many color dots make up one color pixel on a screen?
- 265
 - 16
 - 8
 - 3
- 1254 Which of the following values is the correct value of this hexadecimal code 1F.01B?
- 35.0065918
 - 32.0065918
 - 31.0065918
 - 30.0065918
- 1255 How is the data stored on the diskette?
- Ink
 - Laser bubbles
 - Magnetism
 - Circuits
- 1256 Which of the following is the smallest visual element on a video monitor?
- Character
 - Pixel
 - Byte
 - Bit
- 1257 Which of the following natural element is the primary element in computer chips?
- Silicon
 - Carbon
 - Iron
 - Uranium

- 1258 Which of the following programs enables you to calculate numbers related to rows and columns?
- Window program
 - Spreadsheet program
 - Graphics program
 - Word program
- 1259 Which of the following is a structured programming technique that graphically represents the detailed steps required to solve a program?
- Object-oriented programming
 - Pseudo-code
 - Flowchart
 - Top-down design
- 1260 Which of the following values is the correct value of this hexadecimal code ABCDEF?
- 11259375
 - 11259379
 - 11259312
 - 11257593
- 1261 Which of the following is an output device?
- Keyboard
 - Mouse
 - Light pen
 - VDU
- 1262 Which of the following is an input device?
- Plotter
 - Printer
 - VDU
 - Mouse
- 1263 Which of the following is the extension of Notepad?
- .txt
 - .xls
 - .ppt
 - .bmp
- 1264 BIOS is used?
- By operating system
 - By compiler
 - By interpreter
 - By application software
- 1265 What is the mean of the Booting in the system?
- Restarting computer
 - Install the program
 - To scan
 - To turn off
- 1266 A computer is accurate, but if the result of a computation is false, what is the main reason for it?
- Power failure
 - The computer circuits
 - Incorrect data entry
 - Distraction
- 1267 The central processing unit is located in the_____.
- Hard disk
 - System unit
 - Memory unit
 - Monitor
- 1268 Which one of the following groups contains graphical file extensions?
- JPG, CPX, GCM
 - GIF, TCE, WMF
 - TCP, JPG, BMP
 - JPG, GIF, BMP
- 1269 Which of the following is equal to a gigabyte?
- 1024 bytes
 - 512 GB
 - 1024 megabytes
 - 1024 bits
- 1270 How many bytes does 4 kilobytes represent?
- 512
 - 1024
 - 4096
 - 8192
- 1271 Which type of program acts as an intermediary between a user of a computer and the computer hardware?
- Operating system
 - User thread
 - Super user thread
 - Application program

- 1272 What kind of language can computer understand?
- Normal language
 - Computer language
 - Assembly language
 - High-level language
- 1273 Which of the following values is the correct value of this binary code 1011 and 1111?
- 11 and 14
 - 12 and 15
 - 11 and 15
 - 12 and 14
- 1274 Which of the following is not one of the internal components of a CPU?
- Control sequencer
 - M-D-R
 - M-A-R
 - Floppy disk
- 1275 What is the speed of computer measured in?
- Nanoseconds
 - Kilo-seconds
 - Gigahertz
 - Megabytes
- 1276 What is the full form of RAM?
- Remote Access Memory
 - Random Access Memory
 - Remote Access Memory
 - Random Access Memory
- 1277 What is the full form of DRAM?
- Dynamic Remote Access Memory
 - Dynamic Random-Access Memory
 - Dependent Remote Access Memory
 - Dependent Random-Access Memory
- 1278 Which one of the following software applications would be the most appropriate for performing numerical and statistical calculations?
- Database
 - Document processor
 - Graphics package
 - Spreadsheet
- 1279 Which of the following is not considered hardware?
- Operating system
 - CPU
 - Keyboard
 - Hard disk
- 1280 Which of the following is exclusively a sequential access storage device?
- Hard disk
 - Floppy disk
 - Magnetic tape
 - DVD
- 1281 Balaram has created a story of ten pages, but only wants to print the first two pages. Which printer command should he choose?
- Print all
 - Print from 1 to 2
 - Page setup
 - Print Preview
- 1282 What is the full form of SRAM?
- Static Random-Access Memory
 - Static Remote-Access Memory
 - Setup Random-Access Memory
 - Setup Remote-Access Memory
- 1283 What is the full form of USB?
- Unshielded System Board
 - Universal System Board
 - Unidentified System Bus
 - Universal System Bus
- 1284 Which one of the following is not a form of data storage media?
- A database
 - Magnetic tape
 - Magnetic disc
 - Optical disc
- 1285 What is five main components of a computer system?
- CPU, CD-ROM, Mouse, Keyboard, Sound card
 - Memory, Video card, Monitor, Software, Hardware
 - Modem, Keyboard, Word Processor, Printer, Screen
 - CPU, Memory, System bus, Input, Output

- 1286 Which of the following numbers is a binary number?
- 1 and 2
 - 0 and 0.1
 - 2 and 0
 - 0 and 1
- 1287 Which one of the following is the best fire extinguisher for IT equipment?
- Dry powder
 - Bromo chloride
 - CO₂
 - Water
- 1288 Select the correct statement from the following statements.1. MS-Excel creates workbooks, and each workbook may contain more work sheets.2. A worksheet in MS-Excel 2000 package has a maximum Of 256 columns and 65536 rows. 3. Columns are identified by a number and rows are identified by a letter.4. Cells are identified by the column letter and the row number.
- 1, 2, 3
 - 2, 3, 4
 - 3, 4, 1
 - 1, 2, 4
 - e. None of the these
- 1289 Which of the following statement is correct regarding a template prepared by a word processing package?
- Any document can be saved as a template.
 - Default template is used when you create a new file.
 - Many templates contain text that gives one advice on how to use the template.
 - Default settings are reflected by the normal document template and cannot be overwritten.
- 1290 Which of the following would be the correct description for WORM virus?
- It infects the boot sector.
 - It propagates through the internet and e-mail.
 - It has no effect in increasing the internet traffic
 - It alters the folder structure.
- 1291 A hard disk drive can be directly connected to a PC via a_____.
- SCSI interface
 - Parallel interface
 - WAN interface
 - USB interface
- 1292 The use of the IC in a computer has _____.
- Increased the amount of heating
 - Reduced the size and cost of computers
 - Reduced the peripheral devices to be used
 - Reduced the performance capacity of the computer
- 1293 Consider the following path C:\Device\Module\Module 1. What is name of the file in this path?
- Device
 - Module
 - Module 1
 - C
- 1294 What is the full form of SCSI?
- Standard computer systems interface
 - Small computer systems interface
 - Super computer systems interface
 - Small computer standard interface
- 1295 Which one of the following is not input device?
- Keyboard
 - Mouse
 - Speaker
 - Scanner
- 1296 Which one of the following is an example of the browser software?
- Microsoft Word
 - Notepad
 - Internet navigator
 - Internet explorer

- 1297 Which one of the following commands can be used to work on a file?
- Ctrl + XY
 - Ctrl + 2
 - Ctrl + C
 - None of the these
- 1298 Which of these is a standard interface for serial data transmission?
- ASCII
 - RS232C
 - 2
 - Centronics
- 1299 Which type of topology is best suited for large businesses which must carefully control and coordinate the operation of distributed branch outlets?
- Ring
 - Local area
 - Hierarchical
 - Star
- 1300 Which of the following transmission directions listed is not a legitimate channel?
- Simplex
 - Half Duplex
 - Full Duplex
 - Double Duplex
- 1301 What kind of transmission medium is most appropriate to carry data in a computer network that is exposed to electrical interferences?
- Unshielded twisted pair
 - Optical fiber
 - Coaxial cable
 - Microwave
- 1302 A collection of hyperlinked documents on the internet forms the_____.
- World Wide Web (WWW)
 - E-mail system
 - Mailing list
 - Hypertext markup language
- 1303 The location of a resource on the internet is given by its?
- Protocol
 - URL
 - E-mail address
 - ICQ
- 1304 The term HTTP stands for?
- Hyper terminal tracing program
 - Hypertext tracing protocol
 - Hypertext transfer protocol
 - Hypertext transfer program
- 1305 A proxy server is used as the computer?
- with external access
 - acting as a backup
 - performing file handling
 - accessing user permissions
- 1306 Which one of the following would breach the integrity of a system?
- Looking the room to prevent theft
 - Full access rights for all users
 - Fitting the system with an anti-theft device
 - Protecting the device against willful or accidental damage
- 1307 Which software prevents the external access to a system?
- Firewall
 - Gateway
 - Router
 - Virus checker
- 1308 Which one of the following is a valid email address?
- javat@point.com
 - gmail.com
 - tpoint@.com
 - javatpoint@books
- 1309 Which of the following best describes uploading information?
- Sorting data on a disk drive
 - Sending information to a host computer
 - Receiving information from a host computer
 - Sorting data on a hard drive

- 1310 Which one of the following is the most common internet protocol?
- HTML
 - NetBEUI
 - TCP/IP
 - IPX/SPX
- 1311 Software programs that allow you to legally copy files and give them away at no cost are called which of the following?
- Probe ware
 - Timeshare
 - Shareware
 - Public domain
- 1312 The term FTP stands for?
- File transfer program
 - File transmission protocol
 - File transfer protocol
 - File transfer protection
- 1313 At what speed does tele-computed refer?
- Interface speed
 - Cycles per second
 - Baud rate
 - Megabyte load
- 1314 Which one of the following is not a network topology?
- Star
 - Ring
 - Bus
 - Peer to Peer
- 1315 The maximum length (in bytes) of an IPv4 datagram is?
- 32
 - 1024
 - 65535
 - 512
- 1316 Which of the following statements could be valid with respect to the ICMP (Internet Control Message Protocol)?
- It reports all errors which occur during transmission.
 - A redirect message is used when a router notices that a packet seems to have been routed wrongly.
 - It informs routers when an incorrect path has been taken.
 - The "destination unreachable" type message is used when a router cannot locate the destination.
- 1317 The IP network 192.168.50.0 is to be divided into 10 equal sized subnets. Which of the following subnet masks can be used for the above requirement?
- 255.243.240
 - 255.255.0.0
 - 255.255.0
 - 255.255.255
- 1318 When the mail server sends mail to other mail servers it becomes ____?
- SMTP client
 - SMTP server
 - Peer
 - Master
- 1319 The length of an IPv6 address is?
- 32 bits
 - 64 bits
 - 128 bits
 - 256 bits
- 1320 Consider the following: 1. Twisted pair cables, 2. Microwaves and Satellite Signals, 3. Repeaters, 4. Analog Transmissions, 5. Fiber optics Which of the above is consider as (a) signal transmission medium is data communications?
- (1) and (5)
 - (1) and (2)
 - (1) (2) and (5)
 - (1) (2) (3) and (5)
- 1321 Which of the following address belongs to class A?
- 121.12.12.248
 - 130.12.12.248
 - 128.12.12.248
 - 129.12.12.248
- 1322 Which of the following is correct IPv4 address?
- 124.201.3.1.52
 - 01.200.128.123

- c. 300.142.210.64
d. 10110011.32.16.8
e. 128.64.0.0
- 1323 Which of the following IP addresses can be used as (a) loop-back addresses?
a. 0.0.0.0
b. 127.0.0.1
c. 255.255.255.255
d. 0.255.255.255
- 1324 The term WAN stands for?
a. Wide Area Net
b. Wide Access Network
c. Wide Area Network
d. Wide Access Net
- 1325 Which of the following cannot be used as a medium for 802.3 Ethernet?
a. A thin coaxial cable
b. A twisted pair cable
c. A microwave link
d. A fiber optical cable
- 1326 What IP address class allocates 8 bits for the host identification part?
a. Class A
b. Class B
c. Class C
d. Class D
- 1327 The term IANA stands for?
a. Internet Assigned Numbers Authority
b. Internal Assigned Numbers Authority
c. Internet Associative Numbers Authoritative
d. Internal Associative Numbers Authority
- 1328 How many versions available of IP?
a. 6 version
b. 4 version
c. 2 version
d. 1 version
- 1329 Which layer of the TCP / IP stack corresponds to the OSI model transport layer?
a. Host to host
b. Application
c. Internet
d. Network Access
- 1330 An Aloha network uses an 18.2 kbps channel for sending message packets of 100 bits long size. Calculate the maximum throughput.
a. 5999
b. 6900
c. 6027
d. 5027
- 1331 On a simplex data link, which of the following is a possible error recovery technique?
a. Backward error correction (BEC)
b. The use of hamming codes
c. Automatic Repeat Request (ARQ)
d. Downward error correction (DEC)
- 1332 Which of the statement is correct with regard to Time Division Multiplexing (TDM) and its variants?
a. Statistical TDM makes efficient use of the bandwidth only if the arrival pattern of the data stream is probabilistic
b. TDM requires the transmitter and receiver to be synchronized periodically.
c. TDM performs efficiently if the arrival pattern of the data stream is probabilistic
d. Statistical TDM is efficient if the data stream is deterministic
e. Both (a) and (b)
- 1333 The term IPv4 stands for?
a. Internet Protocol Version 4
b. Internet Programming Version 4
c. International Programming Version 4
d. None of these
- 1334 The term LAN stands for?
a. Local Area Net
b. Local Area Network
c. Local Array Network
d. Local Array Net

- 1335 Which of the through is share the data of two computer?
- Library
 - Network
 - Grouping
 - Integrated system
- 1336 In specific, if the systems use separate protocols, which one of the following devices is used to link two systems?
- Repeater
 - Gateway
 - Bridge
 - Hub
- 1337 How many digits of the Data Network Identification Code (DNIC) identify the country?
- first three
 - first four
 - first five
 - first six
 - None of the above
- 1338 Which of the following methods is used to broadcast two packets on the medium at a time?
- Collision
 - Synchronous
 - Asynchronous
 - None of the above
- 1339 Which of the following is true with regard to the ping command?
- Ping stands for Packet Internet Generator.
 - The ping command checks the port level connectivity between source destinations end points.
 - Ping summarizes the packet loss and round-trip delay between two IP end points.
 - The ping command activates the RARP protocol of the IP layer.
- 1340 The private key in asymmetric key cryptography is kept by?
- Sender
 - Receiver
 - Sender and Receiver
 - None of the these
- 1341 Which of the following algorithms is not used in asymmetric-key cryptography?
- RSA algorithm
 - Diffie-Hellman algorithm
 - Electronic code book algorithm
 - None of the mentioned
- 1342 In the cryptography, the sequence of the letters is rearranged by?
- Transposition ciphers
 - Substitution ciphers
 - Both (a) and (b)
 - None of these
- 1343 What is the maximum efficiency of pure aloha at $G = 1/2$?
- 1.89
 - 17.99
 - 18.999
 - 18.4
- 1344 What is the maximum efficiency of slotted aloha at $G = 1$?
- 36.8
 - 35.8
 - 35.5
 - 37.8
- 1345 Which of the following statement is true about error detection techniques used on communications link?
- Cyclic Redundancy Check (CRC) sequence can detect as well as correct errors.
 - Error detection cannot be used on simplex links.
 - Hamming code can detect up to 3-bit errors.
 - All of the these
- 1346 The correct order of corresponding OSI layers for having functionalities of routing and reconciling machine representation differences with shared access resolution and ASCII test protocol is?
- Network, Physical, Transport, Data link

- b. Network, Physical, Data link, Application
- c. Network, Presentation, Data link, Application
- d. Network, Presentation, Physical, Transport
- 1347 In which of the following switching methods, the message is divided into small packets?
- a. Message switching
- b. Packet switching
- c. Virtual switching
- d. None of the these
- 1348 Which of the following switch methods creates a point-to-point physical connection between two or more computers?
- a. Message switching
- b. Packet switching
- c. Circuit switching
- d. None of the these
- 1349 What is the second name of the proxy server?
- a. Proxy tools
- b. Application proxy
- c. Application-level gateway
- d. All of the these
- 1350 Which of the following servers allows LAN users to share data?
- a. Data server
- b. Point server
- c. File server
- d. Communication server
- 1351 What is the total vulnerable time value of pure Aloha?
- a. Tfr
- b. $1/2 Tfr$
- c. $2 * Tfr$
- d. $4 * Tfr$
- 1352 How many fields are in the SMDS packet?
- a. Two
- b. Three
- c. Four
- d. Five
- 1353 What is the maximum data transfer rate of the optical fiber wire?
- a. 50 kbps
- b. 1000 kbps
- c. 1000 Mbps
- d. None of the these
- 1354 POTS network works on the principle of _____
- a. Telephone switching
- b. Proxy server
- c. File system
- d. Circuit system
- 1355 Which of the following protocols is the bit-oriented protocol?
- a. SSL
- b. http
- c. HDLC
- d. All of the these
- 1356 SLIP stands for _____
- a. System line internet protocol
- b. Serial line internet protocol
- c. Signal line internet protocol
- d. Signal internet protocol
- 1357 The second port is used to _____ in the two-port network.
- a. Input terminal
- b. Output terminal
- c. Signal terminal
- d. Bandwidth terminal
- 1358 Which of the following layers does the HTTP protocol work on?
- a. Physical layer
- b. Data-link layer
- c. Application layer
- d. None of the these
- 1359 Which of the following statement correct about the cipher in cryptography?
- a. It is a method for performing encryption and decryption
- b. It is used to establish the network connection
- c. It is a message event
- d. All of the these

- 1360 SONET stands for_____.
- Signal Operation Network
 - Synchronous Optical Network
 - System Optical Network
 - Signal Optical Network
- 1361 How many layers does the SONET contain?
- 2 layers
 - 3 layers
 - 4 layers
 - 5 layers
- 1362 RAKE receiver designed for_____.
- Multipath fading
 - Signals
 - Data network
 - Network connection
- 1363 What is the formula of high rate in zigzag code?
- $J / (J * 1)$
 - $-Z / (1 + J)$
 - $Z * (1 + J)$
 - $J / (J + 1)$
- 1364 What is the size of the sender window in the Go Back N (ARQ) protocol?
- 0
 - 1
 - 10
 - n
- 1365 What is the efficiency of the Go back N (ARQ) protocol?
- $N = N / (2a + 2a)$
 - $N = N / (1 + 2a)$
 - $N = N * (2a + 2a)$
 - $N = N * (1 + 2a)$
- 1366 What is the size of the destination port in the UDP protocol?
- 8 bits
 - 16 bits
 - 20 bits
 - 32 bits
- 1367 What network utility uses the time-To-Live (TTL) field in the IP header to elicit ICMP error messages?
- Ping
 - Route
 - Traceroute
 - Ifconfig
- 1368 A client of the DNS (Domain Name System) application is called_____.
- DNS server
 - DNS Name
 - DNS resolver
 - DNS inquirer
- 1369 How many characters consist of the entire hostname?
- 511 characters
 - 255 characters
 - 127 characters
 - 31 characters
- 1370 During normal IP packet forwarding by a router, which of the following fields of the IP header is updated?
- Repeater
 - Source address
 - Destination address
 - Checksum
- 1371 Which of the following statements is correct about the DWDM?
- It can transmit data at very high speeds
 - It can transmit data at very slow speeds
 - DWSM stands for digital wave division multiplexing
 - None of the these
- 1372 MAC address is also called_____.
- Physical address
 - Logical address
 - Source address
 - Destination address
- 1373 Which of the following addresses is 32-bit?
- MAC address
 - Virtual address
 - Source address
 - Destination address
- 1374 EDI stands for_____.
- Electronic Data Interchange
 - Electronic Digital Internet

- c. Electronic Digital Interchange
d. Electronic Data Internet
- 1375 What is the maximum data transfer rate of the ISDN?
a. 1024 Mbps
b. 64 Mbps
c. 64 kbps
d. 1024 kbps
- 1376 ARPANET stands for_____.
a. Advanced Recheck Projects Agency Internet
b. Advanced Recheck Projects Agency Network
c. Advanced Research Projects Agency Network
d. Advanced Research Projects Agency Internet
- 1377 What is the size of the UDP header?
a. 8 bytes
b. 16 bytes
c. 20 bytes
d. 64 bytes
- 1378 Which of the following protocols is the connection-less protocol?
a. UDP
b. TCP
c. IP
d. All of the these
- 1379 Wildcard domain name labels begin with a_____.
a. .
b. 0
c. @
d. *
- 1380 What is the maximum length of the STP wire?
a. 20 ft
b. 50 ft
c. 50 meters
d. 100 meters
- 1381 Which network is suitable for a building?
a. WAN
b. LAN
c. MAN
d. PAN
- 1382 _____ is a 2G mobile telecommunications based on the CDM
a. IS-95
b. ISO 1990
c. IS-97
d. None of the these
- 1383 Which of the following statements is correct about IRC?
a. It sends the messages in virtual time
b. It is an application layer protocol
c. It works on the proxy model
d. All of the these
- 1384 Which of the following devices is not a networking device?
a. Hub
b. Switch
c. Bridge
d. None of the these
- 1385 Which of the following devices does not require power to forward the signals?
a. Active hub
b. Passive hub
c. Repeater
d. Bridge
- 1386 How many pins does RJ-45 contain?
a. Two
b. Four
c. Eight
d. Ten
- 1387 What is the use of the computer port?
a. Download the file via the internet
b. To connect with other devices
c. To reduce the internet speed
d. None of the these
- 1388 Which of the following device is used for gaming?
a. Speaker
b. Mouse
c. Joystick
d. None of the these

- 1389 Which of the following command remove the paragraph formatting?
- Ctrl + L
 - Copy
 - Open
 - Ctrl + Q
- 1390 Which of the following memory cannot be directly accessed?
- Primary memory
 - Secondary memory
 - RAM
 - DRAM
- 1391 A spreadsheet is the best application for_____.
- Writing an information
 - Handling simple accounts
 - Producing a grid-referenced map
 - Keeping an inventory of equipment used
- 1392 Which of the following is twice the size of A4 paper?
- A2
 - A3
 - A5
 - A8
- 1393 Which one of the following printers is suitable for printing sprocket-fed carbon copies?
- Normal printer
 - Solid Ink printer
 - Dot-matrix printer
 - Business Inkjet printer
- 1394 The speed of a modern printer is generally measured in_____.
- LPS
 - PPM
 - PPS
 - DPI
- 1395 Which of the following statement is correct about the virus?
- The virus is a small program that infects a large program in the user system.
 - The virus is a file of the hacker.
 - The virus is an operating system that controls the entire OS.
 - None of the these
- 1396 The term A: \ refers to_____.
- Filename
 - Root directory
 - Hard disk
 - Subdirectory
- 1397 Which of the following languages computer understand?
- JAVA language
 - C language
 - Binary Language
 - Object language
- 1398 The four bits are called_____.
- Byte
 - Nibble
 - Octet
 - Bit
- 1399 What is the full form of VDU?
- Virtual Development User
 - Virtual Detection Unit
 - Visual Detection Unit
 - Visual Display Unit
- 1400 Which of the following statement is correct about the PCI?
- PCI is a hardware device.
 - PCI is software that is used to transfer the data
 - PCI is an interface of the OS.
 - All of the these
- 1401 What is the full form of the EEPROM?
- Electrically Erasable Process Read-Only Memory
 - Electrically Erasable Programmable Read-Only Memory
 - Electrical Erase Program Read-Only Memory
 - Electron Erase Program Read-Only Memory
- 1402 Which of the following is a non-volatile memory chip?
- EEPROM
 - RAM
 - DRAM
 - SRAM

- 1403 What is the binary value for the decimal value 44?
- 101101
 - 110100
 - 101100
 - 111100
- 1404 What is the decimal value for the octal value 1?
- 1
 - 8
 - 10
 - 100
- 1405 Which of the following shortcut key shows the properties of a file?
- Alt + Ctrl
 - Alt + P
 - Alt + F3
 - Alt + Enter
- 1406 Which of the following processor has a fixed length of instructions?
- Main processor
 - COM
 - Dual Core
 - RISC
- 1407 What is the full form of HLDA?
- High-Level Data Application
 - High-Level Definition Application
 - Hold Link Data Application
 - HOLD Acknowledge
- 1408 In which of the following, the second-generation computer was based?
- Transistor
 - Electron tube
 - Electron ray
 - Vacuum tube
- 1409 In which of the following computer-generation vacuum tubes were used?
- First-generation
 - Second-generation
 - Third-generation
 - Fourth-generation
- 1410 What is a single dot on a computer screen called?
- Desktop
 - Color dot
 - Pixel
 - Screen dot
- 1411 Which of the following commands cannot be used to work on a file?
- Ctrl + Z
 - Ctrl + Y
 - Ctrl + I
 - None of the these
- 1412 Which of the following language was used in first-generation computers?
- Java
 - Python
 - Machine language
 - All of the these
- 1413 Which of the following statement is correct about the URL?
- URL is a software that connects to the internet
 - URL is the address of the web page
 - URL is the domain name
 - All of the these
- 1414 Which one of the following parts is called the brain of the computer?
- ALU
 - Monitor
 - UPS
 - CPU
- 1415 The output, which consists of images, video, and sound, is described as_____.
- ROM
 - RAM
 - Graphics of the system
 - Multimedia
- 1416 Which of the following device is not a portable device?
- DVD
 - Mobile phone
 - Pen drive
 - None of the these
- 1417 Which of the following memory is non-volatile memory?
- Secondary memory

- b. Random memory
c. RAM
d. ROM
- 1418 Which of the following memory is a volatile memory?
a. Secondary memory
b. Random memory
c. RAM
d. ROM
- 1419 Which of the following address is generated by CPU?
a. Logical address
b. Physical address
c. Actual address
d. Simple address
- 1420 The cache memory works between _____.
a. ROM and CPU
b. RAM and ROM
c. CPU and RAM
d. Random and secondary memory
- 1421 What kind of file does the "BAK" extension refer to?
a. System file
b. Backup file
c. Boot file
d. Binary file
- 1422 Which device contains a cathode ray tube?
a. Speaker
b. Mouse
c. Monitor
d. Keyboard
- 1423 Which of the following memory is very fast memory in a computer?
a. Random-access memory
b. Random memory
c. Cache memory
d. Read-only memory
- 1424 Which of the following type of devices is a computer microphone?
a. Output device
b. Speaker device
c. Input device
d. Keyboard device
- 1425 What is the ".BAT" extension?
a. System file
b. Backup file
c. Storage file
d. None of the these
- 1426 Which of the following device is used for both input and output?
a. Monitor
b. Speaker
c. Scanner
d. Modem
- 1427 Which of the following device is a portable device?
a. Laptop
b. Computer Monitor
c. CPU
d. None of the these
- 1428 Which of the following two memories is the main memory in a computer?
a. Primary memory and Secondary memory
b. RAM and ROM
c. Random memory and Sequential memory
d. Primary memory and Sequential memory
- 1429 Which of the following statement is correct about the DVD?
a. DVD is an optical disk.
b. DVD is very costly.
c. It is not a portable device, i.e., it cannot be carried anywhere easily.
d. It has very poor video and sound quality.
- 1430 Diesel electric traction has comparatively limited over load capacity because _____.
a. Diesel engine is a constant output prime mover
b. Diesel engine has shorter life span
c. Regenerative braking cannot be employed
d. Diesel electric locomotive is heavier than an ordinary electric locomotive

- 1431 Electric traction in comparison to other traction systems has the advantages of _____.
- Higher acceleration and braking retardation
 - Cleanest system and so ideally suitable for the underground and tube railways
 - Better speed control
 - All of the above
- 1432 Electric traction in comparison to other traction systems has the drawbacks of _____.
- Interference with communication lines running along the track
 - Heavy initial expenditure in laying out overhead electric supply system
 - Interruption of traffic for hours owing to short time power failure
 - All of the above
- 1433 In underground traction the supply system is _____.
- 500 V to 2000 V DC
 - 25KV, 50 HZ
 - 50 KV, 50 HZ
 - 25 KV, 25 HZ
- 1434 Problems of single phase traction system is/are _____.
- Current and voltage unbalance
 - Electrostatic and electromagnetic induction
 - Generation of harmonics
 - All of the above
- 1435 The electric motor used for traction work should be mechanically _____.
- Small in overall dimensions
 - Light in weight and robust in construction
 - Capable to withstand continuous vibration
 - All of the above
- 1436 The electric motor used for traction work, electrically should be _____.
- Capable of developing high starting torque and with standing voltage fluctuations and temporary supply interruptions
 - Amenable to simple speed control methods self protective against excessive overloading and amenable to easy and simple methods of Rio static or regenerative breaking
 - Of such characteristics that when they are operated in parallel and coupled mechanically, they share the load almost equal
 - All of the above
- 1437 DC shunt motors are not suitable for traction services because of their _____.
- Hard characteristics
 - Large time constant
 - Power verifying directly with developed torque
 - All of the above
- 1438 Braking system employed in diesel electric traction is _____.
- Hydraulic type
 - Vacuum type
 - Regenerative type
 - Any of the above
- 1439 The type of breaking used in electric traction is _____.
- Mechanical breaking
 - Vacuum brake system
 - Electro-pneumatic breaking
 - Both (a) and (c)
- 1440 The wheels of a train, engine as well as the bogies are slightly tapered to _____.
- Reduce friction
 - Increase friction
 - Facilitate breaking
 - Facilitate in taking turns
- 1441 In diesel electric drive _____.
- Initial investment required is low
 - Locomotive and train is a self-contained unit
 - Power loss in speed control is low

- d. All of the above
- 1442 Battery driven vehicles_____.
- Are easy to control and very convenient to use
 - Have low maintenance cost
 - Cause no pollution
 - All of the above
- 1443 Unbalanced forces for maximum in case of_____.
- Diesel shunters
 - Design locomotives
 - Steam locomotives
 - Electric locomotives
- 1444 Maintenance requirements are minimum in case of_____.
- Electric locomotives
 - Steam locomotives
 - Diesel electric locomotives
 - Diesel engines
- 1445 Low-frequency operation of overhead line in traction system_____.
- Increases the spacing between substations
 - Reduces the spacing between substations
 - Spacing is independent of frequency of supply
 - All of the above
- 1446 In Kando system of track electrification_____.
- Single phase AC is converted into DC
 - Single phase AC is converted into three phase AC
 - Three phase AC is converted into DC
 - Three phase AC is converted into single phase AC
- 1447 In tramways_____.
- The power is supplied at 600 V DC is from a single overhead conductor of positive polarity
 - The speed is controlled by field weakening or series parallel control
 - Rheostatic and mechanical breaking are employed for normal service
 - All of the above
- 1448 For tramways the return circuit is_____.
- Track rails
 - Neutral where
 - Common earthing
 - Cables
- 1449 Unlike a tramway a trolley bus needs no_____.
- Driving axles
 - Running rail
 - Hand breaks
 - Overhead contact wire
- 1450 Ordinary tramway is the most economical means of transport for_____.
- Very dense traffic in large cities
 - Rural services
 - Suburban services
 - All of the above
- 1451 For 600 V DC line for tram cars, track is connected to the_____.
- Positive of the supply
 - Negative of the supply
 - Mid-voltage of 300 V
 - None of the above
- 1452 Quadrilateral speed time curve pertains to which of the following services?
- Main line service
 - Urban service
 - Sub Urban service
 - Urban and suburban service
- 1453 Due to which of the following coefficient of adhesion improves?
- Rust on the rails
 - Dust on the rails
 - Sand on the rails
 - All of the above
- 1454 Coefficient of radiation reduces due to the presence of which of the following?
- Sand on rails
 - Dew on rails
 - Oil on the rails
 - Both (b) and (c)

- 1455 The normal value of adhesion friction is_____.
- 0.12
 - 0.25
 - 0.4
 - 0.75
- 1456 The value of coefficient of adhesion will be high when rails are
- Greased
 - Wet
 - Sprayed with oil
 - Cleaned with sand
- 1457 Longer coasting period for a train results in_____.
- Higher schedule speed
 - Lower specific energy consumption
 - Higher retardation
 - Higher acceleration
- 1458 The method of speed control adopted in 25KV, single phase, 50 HZ traction is_____.
- Tap changing control of transformer
 - Reduced current method
 - Series parallel control
 - Rheostatic control
- 1459 In motor generator locomotive control_____.
- Rheostatic control is used
 - Series parallel control is used
 - The output voltages of generator is regulated by means of a field control from exciter
 - Any of the above
- 1460 The preferable method of speed control of linear induction motor is_____.
- Variable flux control
 - PAM Control
 - Variable frequency and a constant voltage control
 - Variable frequency and variable voltage control
- 1461 Which off the following braking systems on the locomotives is costly?
- Vacuum breaking on steam locomotives
 - Vacuum breaking on diesel locomotives
 - Regenerative breaking on electric locomotives
 - All braking systems are equally costly
- 1462 Vacuum is created by_____.
- Vacuum pumps
 - Ejector
 - Vacuum pump or ejector
 - None of the above
- 1463 Overhead lines for power supply to tram cars are at a minimum height of a_____.
- 10 m
 - 8 m
 - 5 m
 - 15 m
- 1464 DC track circuit consists of_____.
- Amplitude modulation equipment
 - A negative booster, feeding points and signals
 - Insulated joint and track, track bonding, regulating resistance
 - All of the above
- 1465 Advantages of two stage pantograph is_____.
- Inertia forces are reduced
 - Takes care of variation in contact height and displacement of contact wire between supports
 - Takes care of low amplitude displacement of contact wire between droppers
 - All of the above
- 1466 Span length between supports in electric traction is determined by_____.
- Weight of wire per unit length
 - Maximum wind pressure
 - Permissible tension in the wire and speed of train
 - All of the above

- 1467 The first nuclear power plant in the world was commissioned in_____.
- U.S.A.
 - U.S.S.R
 - England
 - None of the above
- 1468 In all plant minimum quality of fuel is required in_____.
- Thermal power plant
 - Hydro electric power plant
 - Nuclear power plant
 - Gas turbine plant
- 1469 The average thermal efficiency of modern nuclear power plant is about_____.
- 30%
 - 60%
 - 40%
 - 80%
- 1470 Reflectors of a nuclear reactors are made of_____.
- Boron
 - Cast iron
 - Beryllium
 - Steel
- 1471 The nuclear energy is measured as_____.
- MeV
 - MW
 - Curie
 - None of the above
- 1472 In the nuclear fission reactions_____isotope of uranium is used
- U^{238}
 - U^{235}
 - U^{233}
 - None of the above
- 1473 The conversion ratio of a breeder reactor is_____.
- Equal to unity
 - More than unity
 - Less than unity
 - None of the above
- 1474 _____is the most commonly used moderator
- Graphite
 - Sodium
 - Deuterium
 - Heavy water
- 1475 The function of the moderator in a nuclear is to_____.
- Stop chain reaction
 - Absorb neutrons
 - Reduce the speed of neutrons
 - Reduce temperature
- 1476 Fast breed reactors are best suited for_____.
- Of large thorium deposits
 - Of large uranium deposits
 - Of large plutonium deposits
 - None of the above
- 1477 The function of a moderator in a nuclear reactor is_____.
- To slow down the fast moving electrons
 - To speed up the slow moving electron
 - To start the chain reaction
 - To transfer heat produced inside the reactor to a heat exchanger
- 1478 When nuclear reactor is operating at constant power the multiplication factor is_____.
- Equal to unity
 - More than unity
 - Less than unity
 - None of the above
- 1479 In a nuclear reactor function of reflector is to_____.
- Reduce the speed of the neutrons
 - Stop the chain reaction
 - Reflect the escaping neutrons back into the core
 - None of the above
- 1480 In a gas cooled rector(GCR) _____is used as moderator and coolant respectively
- Heavy water and CO_2
 - Graphite and CO_2

- c. Graphite and air
d. None of the above
- 1481 In a pressurized water reactor (PWR) _____.
- The coolant water is pressurized to work as moderator
 - The coolant water boils in the core of the reactor
 - The coolant water is pressurized to prevent boiling of water in the core
 - None of the above
- 1482 In a hydro-electric plant, spillways are use_____.
- To discharge all surplus water
 - To discharge surplus water on the downstream side of dam
 - Water is not available in sufficient quantity
 - None of the above
- 1483 The running cost of hydro-electric power plant is _____paise per unit
- 10
 - 8
 - 5
 - 15
- 1484 Francis and kaplan turbine is used for_____heads hydro-electric plant.
- Medium and low head
 - High head
 - Low head
 - Low and high head
- 1485 For high head hydro-electric plants, the turbine used is_____.
- Pelton wheel
 - Francis
 - Kaplan
 - All of the above
- 1486 The cost of fuel transportation is minimum_____.
- Thermal power plant
 - Hydro-electric power plant
 - Nuclear power plant
 - None of the above
- 1487 The cheapest plant in operation and maintenance is_____.
- Steam power plant
 - Nuclear power plant
 - Hydro-electric power plant
 - None of the above
- 1488 The most simple and keen plant is_____.
- Nuclear power plant
 - Steam power plant
 - Hydro-electric power plant
 - None of the above
- 1489 Pelton turbines are mostly_____.
- Horizontal
 - Vertical
 - Inclined
 - None of the above
- 1490 The annual depreciation of a hydro power plant is about_____.
- 0.5% to 1.5%
 - 10% to 15%
 - 15% to 20%
 - 20% to 25%
- 1491 The power output from a hydro-electric power plant depends on three parameters_____.
- Head, type and dam of discharge
 - Head, discharge and efficiency of the system
 - Efficiency of the system, type of draft tube and type of turbine used
 - Type of dam, discharge and type of catchment area
- 1492 The cheapest plant in operation and maintenance is_____.
- Steam power plant
 - Nuclear power plant
 - Hydro-electric power plant
 - None of the above
- 1493 Running cost of a hydro-electric power plant is_____.
- Equal to running cost of a steam power plant
 - Less than running cost of a steam power plant

- c. More than running cost of a steam power plant
d. None of the above
- 1494 Location of the surge tank in a hydro-electric station is near to the_____.
- Tailrace
 - Turbine
 - Reservoir
 - None of the above
- 1495 Pelton wheel turbine is used for minimum of the following heads_____.
- 40 m
 - 120 m
 - 150 m
 - 180 m or above
- 1496 In high head hydro power plant the velocity of water in penstock is about_____.
- 1 m/s
 - 4 m/s
 - 7 m/s
 - 12 m/s
- 1497 The function of a surge tank is_____.
- To supply water at constant pressure
 - To produce surges in the pipe line
 - To relieve water hammer pressures in the penstock pipe
 - To supply water in emergency
- 1498 Francis, Kaplan and Propeller turbines fall under the category of_____.
- Impulse turbine
 - Reaction turbine
 - Impulse reaction combined
 - Axial flow
- 1499 In Francis turbine runner, the number of blades is generally of the order of_____.
- 1-2
 - 4-6
 - 6-8
 - 12-16
- 1500 Francis turbine is usually used for_____.
- Low head installation up to 30 m
 - Medium head installation from 30 m to 180 m
 - High head installation above 180 m
 - For all heads
- 1501 Gross head of a hydro power station is_____.
- The difference of water level between the level in the storage and tail race
 - The height of the water level in the river where the storage is provided
 - The height of the water level in the river where the tail race is provided
 - None of the above
- 1502 Operating charges are minimum in the case of_____ for same power output
- Gas turbine plant
 - Hydel plant
 - Thermal plant
 - Nuclear plant
- 1503 Which of the following insulation is used in cables?
- Varnished cambric
 - Rubber
 - Paper
 - Any of the above
- 1504 The bedding on a cable consists of_____.
- Hessian cloth
 - Jute
 - Any of the above
 - None of the above
- 1505 The insulating material for cables should
- be acid-proof
 - be non-inflammable
 - be non-hygroscopic
 - have all the above properties
- 1506 Conduit pipes are normally used to protect_____ cables.
- unsheathed cables

- b. armoured
c. PVC sheathed cables
d. all of the above
- 1507 In a cable, the maximum stress under operating conditions is at_____.
- a. insulation layer
b. sheath
c. armour
d. conductor surface
- 1508 The insulating material for a cable should have_____.
- a. Low cost
b. High dielectric strength
c. High mechanical strength
d. All of the above
- 1509 High tension cables are generally used up to_____.
- a. 11kV
b. 33kV
c. 66 kV
d. 132 kV
- 1510 The surge resistance of cable is_____.
- a. 5 ohms
b. 20 ohms
c. 50 ohms
d. 100 ohms
- 1511 In the cables, sheaths are used to_____.
- a. Prevent the moisture from entering the cable
b. Provide enough strength
c. Provide proper insulation
d. None of the above
- 1512 In the cables, the location of the fault is usually found out by comparing_____.
- a. the resistance of the conductor
b. the inductance of conductors
c. the capacitances of insulated conductors
d. all above parameters
- 1513 Underground cables are laid at sufficient depth_____.
- a. To minimize temperature stresses
b. To avoid being unearthed easily due to removal of soil
c. To minimize the effect of shocks and vibrations due to gassing vehicles, et
d. For all of the above reasons
- 1514 The insulating material should have_____.
- a. low permittivity
b. high resistivity
c. high dielectric strength
d. all of the above
- 1515 The breakdown voltage of a cable depends on_____.
- a. presence of moisture
b. working temperature
c. time of application of the voltage
d. all of the above
- 1516 The electrostatic stress in underground cables is_____.
- a. same at the conductor and the sheath
b. minimum at the conductor and maximum at the sheath
c. maximum at the conductor and minimum at the sheath
d. zero at the conductor as well as on the sheath
- 1517 The breakdown of insulation of the cable can be avoided economically by the use of_____.
- a. inter-sheaths
b. insulating materials with different dielectric constants
c. both a and b
d. none of the above
- 1518 Cables, generally used beyond 66 kV are_____.
- a. oil filled
b. S.L. type
c. belted
d. armored
- 1519 The relative permittivity of rubber is_____.
- a. between 2 and 3
b. between 5 and 6

- c. between 8 and 10
d. between 12 and 14
- 1520 Dielectric strength of rubber is around_____.
- a. 5 kV/mm
b. 15 kV/mm
c. 30 kV/mm
d. 200 kV/mm
- 1521 If a cable of homogeneous insulation has a maximum stress of 10 kV/mm, then the dielectric strength of insulation should be_____.
- a. 5 kV/mm
b. 10 kV/mm
c. 15 kV/mm
d. 30 kV/mm
- 1522 The advantage of oil filled cables is_____.
- a. more perfect impregnation
b. smaller overall size
c. no ionization, oxidation and formation of voids
d. all of the above
- 1523 A certain cable has an insulation of relative permittivity, 4. If the insulation is replaced by one of relative permittivity 2, the capacitance of the cable become_____.
- a. one half
b. double
c. four times
d. none of the above
- 1524 The insulation of the cable decreases with_____.
- a. the increase in length of the insulation
b. the decrease in the length of the insulation
c. either (a) or (b)
d. none of the above
- 1525 The disadvantage with paper as insulating material is_____.
- a. it is hygroscopic
b. it has high capacitance
- c. it is an organic material
d. none of the above
- 1526 Solid type cables are considered unreliable beyond 66 kV because_____.
- a. Insulation may melt due to higher temperature
b. Skin effect dominates on the conductor
c. Of corona loss between conductor and sheath material
d. There is a danger of breakdown of insulation due to the presence of voids
- 1527 If a power cable and a communication cable are to run parallel the minimum distance between the two, to avoid interference, should be_____.
- a. 2 cm
b. 10 cm
c. 50 cm
d. 400 cm
- 1528 In a cable the voltage stress is maximum at_____.
- a. sheath
b. insulator
c. surface of the conductor
d. core of the conductor
- 1529 The thickness of the layer of insulation on the conductor in cables depends upon_____.
- a. Reactive power
b. Power factor
c. Voltage
d. Current carrying capacity
- 1530 A cable is to be designed for use on 1000 kV, which insulation would you prefer?
- a. Polyvinyl chloride
b. Vulcanized rubber
c. Impregnated paper
d. Compressed SF6 gas
- 1531 In capacitance grading of cables we use a_____dielectric.
- a. composite

- b. porous
c. homogeneous
d. hygroscopic
- 1532 Pressure cables are generally not used beyond_____.
- a. 11 kV
b. 33 kV
c. 66 kV
d. 132 kV
- 1533 The material for armoring on cable is usually_____.
- a. steel tape
b. galvanized steel wire
c. any of the above
d. none of the above
- 1534 Capacitance grading of cable implies
- a. use of dielectrics of different permeabilities
b. grading according to the capacitance of cables per km length
c. cables using single dielectric in different concentrations
d. capacitance required to be introduced at different lengths to counter the effect of inductance
- 1535 The inter sheaths in the cables are used to_____.
- a. minimize the stress
b. avoid the requirement of good insulation
c. provide proper stress distribution
d. none of the above
- 1536 PVC stands for_____.
- a. polyvinylchloride
b. post varnish conductor
c. pressed and varnished cloth
d. positive voltage conductor
e. none of the above
- 1537 A cable carrying alternating current has_____.
- a. hysteresis losses only
b. hysteresis and leakage losses only
c. hysteresis, leakage, and copper losses only
d. hysteresis, leakage, copper, and friction losses
- 1538 The minimum dielectric stress in a cable is at_____.
- a. armour
b. bedding
c. conductor surface
d. lead sheath
- 1539 Low tension cables are generally used up to_____.
- a. 200 V
b. 500 V
c. 700 V
d. 1000 V
- 1540 In a cable immediately above metallic sheath_____is provided.
- a. earthing connection
b. bedding
c. armoring
d. none of the above
- 1541 In cables the charging current_____.
- a. lags the voltage by 90°
b. leads the voltage by 90°
c. lags the voltage by 180°
d. leads the voltage by 180°
- 1542 In single core cables armoring is not done to_____.
- a. avoid excessive sheath losses
b. make it flexible
c. either of the above
d. none of the above
- 1543 Empire tape is_____.
- a. varnished cambric
b. vulcanized rubber
c. impregnated paper
d. none of the above
- 1544 The advantage of cables over overhead transmission lines is_____.
- a. easy maintenance
b. low cost
c. can be used in congested areas
d. can be used in high voltage circuits
- 1545 Cables for 220 kV lines are invariably_____.
- a. mica insulated

- b. paper insulated
c. compressed oil or compressed gas insulated
d. rubber insulated
- 1546 The thickness of metallic shielding on cables is usually_____.
- a. 0.04 mm
b. 0.2 to 0.4 mm
c. 3 to 5 mm
d. 40 to 60 mm
- 1547 Resistance grounding is used for voltage between_____.
- a. 33kV to 66kV
b. 11 kV to 33kV
c. 3.3kV and 11kV
d. none of the above
- 1548 The contacts of high voltage switches used in power system are submerged in oil. The main purpose of the oil is to_____.
- a. lubricate the contacts
b. insulate the contacts from switch body
c. extinguish the arc
d. all of the above
e. none of the above
- 1549 In Railway applications_____ circuit breaker is used.
- a. SF₆
b. bulk oil
c. minimum oil
d. air break
- 1550 To protect most of the electrical equipment handling low power, the types of relays used are_____.
- a. thermocouple
b. electronic and bimetallic
c. both (a) and (b)
d. none of the above
- 1551 Wave trap is used to trap waves of_____.
- a. power frequencies
b. higher frequencies entering generator or transformer units
c. either of the above
d. none of the above
- 1552 Ungrounded neutral transmission system is not recommended because of system_____.
- a. insulation being overstressed due to over voltages
b. insulation over stress may lead to failure and subsequent phase to phase faults
c. being inadequately protected against ground fault
d. all of the above
- 1553 The reflection co-efficient at the open circuited end of a transmission line is_____.
- a. zero
b. infinity
c. unity
d. none of the above
- 1554 For the protection of power station buildings against direct strokes the requirements are_____.
- a. interception
b. interception and conduction
c. interception, conduction and dissipation
d. interception, conduction, dissipation and reflection
e. none of the above
- 1555 The line insulation is_____ the insulation level of the station equipment.
- a. less than
b. same as
c. more than
d. proportional to
e. directly related with
- 1556 The interaction between a transmission line and communication line is minimized by_____.
- a. transposing transmission as well as communication lines
b. increasing the height of the transmission line tower
c. increasing the distance between the two lines
d. all of the above

- 1557 When a wave propagates on a transmission line, it suffers reflection several times at _____.
- tapping
 - load end
 - sending end
 - sending and other end
 - all of the above
- 1558 Which of the following statements is incorrect?
- Station batteries are used to operate relay only
 - The lightning arresters are basically surge diverters
 - An impedance relay has maximum fault current when fault occurs near the relay
 - A high speed relay has an operation of 1 to 2 cycles
- 1559 Discrimination between main and back up protection is provided by the use of relays which are _____.
- fact
 - sensitive
 - slow
 - none of the above
- 1560 Induction cup relay is operated due to changes in _____.
- current
 - voltage
 - impedance
 - all of the above
- 1561 A.C. network analyzer is used to solve problems of _____.
- load flow
 - load flow and short-circuit
 - load flow and stability
 - load flow, short-circuit and stability
 - none of the above
- 1562 Which of the following statements is incorrect?
- Lightning arrestors are used before the switchgear
 - Shunt reactors are used as compensation reactors
 - The peak short current is $(1.8 \times V_2)$ times the A.C. component
 - The MVA at fault is equal to base MVA divided by per unit equivalent fault reactance
- 1563 Short-circuit currents are due to _____.
- single phase to ground faults
 - phase to phase faults
 - two phase to ground faults
 - three phase faults
 - any of these
- 1564 To reduce short circuit fault currents _____ are used.
- reactors
 - resistors
 - capacitors
 - none of the above
- 1565 Bus coupler is very essential in arrangement of _____.
- single bus
 - double bus, double breaker
 - main and transfer bus
 - all of the above
- 1566 For cost and safety, the outdoor substations are installed for voltages above _____.
- 11 kV
 - 33 kV
 - 60kV
 - 110kV
- 1567 The short circuit in any winding of the transformer is the result of
- mechanical vibration
 - insulation failure
 - loose connection
 - impulse voltage
- 1568 _____ relays are used for phase faults on long line.
- Impedance
 - Reactance
 - Either of the above
 - None of the above
- 1569 For which of the following protection from negative sequence currents is provided?

- a. Generators
b. Motors
c. Transmission line
d. Transformers
- 1570 _____ relay is preferred for phase fault on short transmission line.
a. Induction type
b. Reactance
c. Impedance
d. None of the above
- 1571 Distance relays are generally_____.
a. split-phase relays
b. reactance relays
c. impedance relays
d. none of the above
- 1572 For which of the following ratings of the transformer differential protection is recommended?
a. above 30 kVA
b. equal to and above 5 MVA
c. equal to and above 25 MVA
d. none of the above
- 1573 A_____is used to measure the stator % winding temperature of the generator.
a. thermocouple
b. pyrometer
c. resistance thermometer
d. thermometer
- 1574 The under voltage relay can be used for_____.
a. generators
b. bus bars
c. transformers
d. motors
e. all of the above
- 1575 The relay with inverse time characteristic will operate within_____.
a. 1.5 sec
b. 5 to 10 sec
c. 5 to 20 sec
d. 20 to 30 sec
e. none of the above
- 1576 The single phasing relays are used for the protection of_____.
a. single phase motors only
b. two phase motors only
c. two single phase motors running in parallel
d. three phase motors
- 1577 Which of the following devices will receive voltage surge first travelling on the transmission line?
a. Lightning arresters
b. Relays
c. Step-down transformer
d. Switchgear
- 1578 Which of the following parameter can be neglected for a short line?
a. Inductance
b. Capacitance
c. Resistance
d. Reactance
- 1579 Series reactors should have_____.
a. low resistance
b. high resistance
c. low impedance
d. high impedance
- 1580 Which of the following circuit breakers has high reliability and minimum maintenance?
a. Air blast circuit breakers
b. Circuit breaker with SF6 gas
c. Vacuum circuit breakers
d. Oil circuit breakers
- 1581 Arc in a circuit breaker is interrupted at_____.
a. zero current
b. maximum current
c. minimum voltage
d. maximum voltage
- 1582 _____transmission line has reflection coefficient as one.
a. Open circuit
b. Short-circuit
c. Long
d. None of the above

- 1583 What will be the reflection coefficient of the wave of load connected to transmission line if surge impedance of the line is equal to load?
- Zero
 - Unity
 - Infinity
 - None of the above
- 1584 The inverse definite mean time relays are used for over current and earth fault protection of transformer against_____.
- heavy loads
 - internal short-circuits
 - external short-circuits
 - all of the above
- 1585 Over voltage protection is recommended for_____.
- hydro-electric generators
 - steam turbine generators
 - gas turbine generators
 - all of the above
 - none of the above
- 1586 Air blast circuit breakers for 400 kV power systems are designed to operate in_____.
- 100 microsecond
 - 50 millisecond
 - 0.5 sec
 - 0.1 sec
- 1587 Over fluxing protection is recommended for_____.
- distribution transformer
 - generator transformer of the power plant
 - auto-transformer of the power plant
 - station transformer of the power plant
- 1588 Series capacitors are used to_____.
- compensate for line inductive reactance
 - compensate for line capacitive reactance
 - improve line voltage
 - none of the above
- 1589 Admittance relay is_____relay.
- impedance
 - directional
 - non-directional
 - none of the above
- 1590 The material used for fuse must have_____.
- low melting point and high specific resistance
 - low melting point and -low specific resistance
 - high melting point and low specific resistance
 - low melting point and any specific resistance
- 1591 If the fault occurs near the impedance relay, the V/I ratio will be_____.
- constant for all distances
 - lower than that of if fault occurs away from the relay
 - higher than that of if fault occurs away from the relay
 - none of the above
- 1592 The torque produced in induction type relay (shaded pole structure) is_____.
- inversely proportional to the current
 - inversely proportional to the square of the current
 - proportional to the current
 - proportional to square of the current
- 1593 The steady state stability of the power system can be increased by_____.
- connecting lines in parallel
 - connecting lines in series
 - ing machines of high impedance
 - reducing the excitation of machines
 - none of the above
- 1594 The inductive interference between power and communication line can be minimized by_____.
- transposition of the power line

- b. transposition of the communication line
 c. both (a) and (b)
 d. increasing the distance between the conductors
- 1595 The power loss is an important factor for the design of_____.
- a. transmission line
 b. motor
 c. generator
 d. feeder
- 1596 A fuse is connected_____.
- a. in series with circuit
 b. in parallel with circuit
 c. either in series or in parallel with circuit
 d. none of the above
- 1597 H.R.C. fuse, as compared to a rewirable fuse, has_____.
- a. no ageing effect
 b. high speed of operation
 c. high rupturing capacity
 d. all of the above
- 1598 The fuse rating is expressed in terms of_____.
- a. current
 b. voltage
 c. VAR
 d. kVA
- 1599 The fuse blows off by_____.
- a. burning
 b. arcing
 c. melting
 d. none of the above
- 1600 On which of the following effects of electric current a fuse operates?
- a. Photoelectric effect
 b. Electrostatic effect
 c. Heating effect
 d. Magnetic effect
- 1601 An isolator is installed_____.
- a. to operate the relay of circuit breaker
 b. as a substitute for circuit breaker
- c. always independent of the position of circuit breaker
 d. generally on both sides of a circuit breaker
- 1602 A fuse in a motor circuit provides protection against_____.
- a. overload
 b. short-circuit and overload
 c. open circuit, short-circuit and overload
 d. none of the above
- 1603 Protection by fuses is generally not used beyond_____.
- a. 20 A
 b. 50 A
 c. 100 A
 d. 200 A
- 1604 Oil switches are employed for_____.
- a. low currents circuits
 b. low voltages circuits
 c. high voltages and large currents circuits
 d. all circuits
- 1605 Switchgear is a device used for_____.
- a. interrupting an electrical circuit
 b. switching an electrical circuit
 c. switching and controlling an electrical circuit
 d. switching, controlling and protecting the electrical circuit and equipment
- 1606 The fuse wire, in D.C. circuits, is inserted in_____.
- a. negative circuit only
 b. positive circuit only
 c. both (a) and (b)
 d. either (a) or (b)
- 1607 By which of the following methods major portion of the heat generated in a_____.
- a. Radiation
 b. Convection
 c. Conduction
 d. All of the above

- 1608 A short-circuit is identified by_____.
 a. no current flow
 b. heavy current flow
 c. voltage drop
 d. voltage rise
- 1609 The information to the circuit breaker under fault conditions is provided by
 a. relay
 b. rewirable fuse
 c. H.R.C. only
 d. all of the above
- 1610 To limit short-circuit current in a power system_____are used.
 a. earth wires
 b. isolators
 c. H.R.C. fuses
 d. reactors
- 1611 A balanced 3-phase system consists of_____.
 a. zero sequence currents only
 b. positive sequence currents only
 c. negative and zero sequence currents
 d. zero, negative and positive sequence currents
- 1612 In a single bus-bar system there will be complete shut down when_____.
 a. fault occurs on the bus itself
 b. fault occurs on neutral line
 c. two or more faults occur simultaneously
 d. fault occurs with respect to earthing
- 1613 _____are the conductors, which connect the consumer's terminals to the distribution.
 a. Distributors
 b. Service mains
 c. Feeders
 d. None of the above
- 1614 The underground system cannot be operated above_____.
 a. 440 V
 b. 11 kV
- c. 33 kV
 d. 66 kV
- 1615 Overhead system can be designed for operation up to_____.
 a. 11 kV
 b. 33 kV
 c. 66 kV
 d. 400 kV
- 1616 If variable part of annual cost on account of interest and depreciation on the capital outlay is equal to the annual cost of electrical energy wasted in the conductors, the total annual cost will be minimum and the corresponding size of conductor will be most economical. This statement is known as_____.
 a. Kelvin's law
 b. Ohm's law
 c. Kirchhoff's law
 d. Faraday's law
 e. none of the above
- 1617 The wooden poles well impregnated with creosote oil or any preservative compound have life
 a. from 2 to 5 years
 b. 10 to 15 years
 c. 25 to 30 years
 d. 60 to 70 years
- 1618 Which of the following materials is not used for transmission and distribution of electrical power?
 a. Copper
 b. Aluminium
 c. Steel
 d. Tungsten
- 1619 Galvanised steel wire is generally used as_____.
 a. stay wire
 b. earth wire
 c. structural components
 d. all of the above
- 1620 The usual spans with R.C.C. poles are_____.
 a. 40—50 meters
 b. 60—100 meters

- c. 80—100 meters
d. 300—500 meters
- 1621 The corona is considerably affected by which of the following?
a. Size of the conductor
b. Shape of the conductor
c. Surface condition of the conductor
d. All of the above
- 1622 Which of the following are the constants of the transmission lines?
a. Resistance
b. Inductance
c. Capacitance
d. All of the above
- 1623 310 km line is considered as_____.
a. a long line
b. a medium line
c. a short line
d. any of the above
- 1624 The phenomenon of rise in voltage at the receiving end of the open-circuited or lightly loaded line is called the_____.
a. Seeback effect
b. Ferranti effect
c. Raman effect
d. none of the above
- 1625 The square root of the ratio of line impedance and shunt admittance is called the_____.
a. surge impedance of the line
b. conductance of the line
c. regulation of the line
d. none of the above
- 1626 Which of the following is the demerit of a constant voltage transmission system?
a. Increase of short-circuit current of the system
b. Availability of steady voltage at all loads at the line terminals
c. Possibility of better protection for the line due to possible use of higher terminal reactants
d. Improvement of power factor at times of moderate and heavy loads
e. possibility of carrying increased power for a given conductor size in case of long-distance heavy power transmission
- 1627 Low voltage cables are meant for use up to_____.
a. 1.1kV
b. 3.3kV
c. 6.6kV
d. 11kV
e. None of the above
- 1628 The operating voltage of high voltage cables is up to_____.
a. 1.1 kV
b. 3.3 kV
c. 6.6 kV
d. 11 kV
- 1629 The operating voltage of super tension cables is up to_____.
a. 3.3 kV
b. 6.6 kV
c. 11 kV
d. 33 kV
- 1630 The operating voltage of extra high tension cables is up to_____.
a. 6.6 kV
b. 11 kV
c. 33 kV
d. 66 kV
e. 2 kV
- 1631 Which of the following methods is used for laying of underground cables?
a. Direct laying
b. Draw-in-system
c. Solid system
d. All of the above
- 1632 Which of the following is the source of heat generation in the cables?
a. Dielectric losses in cable insulation
b. losses in the conductor
c. Losses in the metallic sheathings and armourings
d. All of the above

- 1633 Due to which of the following reasons the cables should not be operated too hot?
- The oil may lose its viscosity and it may start drawing off from higher levels
 - Expansion of the oil may cause the sheath to burst
 - Unequal expansion may create voids in the insulation which will lead to ionization
 - The thermal instability may rise due to the rapid increase of dielectric losses with temperature
 - l of the above
- 1634 Which of the following D.C. distribution system is the simplest and lowest in first cost?
- Radial system
 - Ring system
 - Inter-connected system
 - None of the above
- 1635 A booster is a_____.
- series wound generator
 - shunt wound generator
 - synchronous generator
 - none of the above
- 1636 Besides a method of trial and error, which of the following methods is employed for solution of network problems in interconnected system?
- Circulating current method
 - Thevenin's theorem
 - Superposition of currents
 - Direct application of Kirchhoff's laws
 - All of the above
- 1637 Which of the following faults is most likely to occur in cables?
- Cross or short-circuit fault
 - Open circuit fault
 - Breakdown of cable insulation
 - All of the above
- 1638 The cause of damage to the lead sheath of a cable is_____.
- crystallization of the lead through vibration
 - chemical action on the lead when buried in the earth
 - mechanical damage
 - all of the above
- 1639 The voltage of the single phase supply to residential consumer is_____.
- 110 V
 - 210 V
 - 230 V
 - 400 V
- 1640 Most of the high voltage transmission lines in India are_____.
- underground
 - overhead
 - either of the above
 - none of the above
- 1641 The distributors for residential areas are_____.
- single phase
 - three-phase three wire
 - three-phase four wire
 - none of the above
- 1642 The conductors of the overhead lines are_____.
- solid
 - stranded
 - both solid and stranded
 - none of the above
- 1643 High voltage transmission lines use_____.
- suspension insulators
 - pin insulators
 - both (a) and (b)
 - none of the above
- 1644 Multi-core cables generally use_____.
- square conductors
 - circular conductors
 - rectangular conductors
 - sector-shaped conductors
 - none of the above
- 1645 Distribution lines in India generally use_____.
- wooden poles

- b. R.C.C. poles
c. steel towers
d. none of the above
- 1646 The material commonly used for insulation in high voltage cables is_____.
- a. lead
b. paper
c. rubber
d. none of the above
- 1647 The loads on distributors systems are generally_____.
- a. balanced
b. unbalanced
c. either of the above
d. none of the above
- 1648 The power factor of industrial loads is generally_____.
- a. unity
b. lagging
c. leading
d. zero
- 1649 Overhead lines generally use_____.
- a. copper conductors
b. all aluminium conductors
c. A.C.S.R. conductors
d. none of these
- 1650 In transmission lines the cross-arms are made of_____.
- a. copper
b. wood
c. R.C.C.
d. steel
- 1651 The material generally used for armour of high voltage cables is_____.
- a. aluminium
b. steel
c. brass
d. copper
- 1652 Transmission line insulators are made of_____.
- a. glass
b. porcelain
- c. iron
d. P.V.C.
- 1653 The material commonly used for sheaths of underground cables is_____.
- a. lead
b. rubber
c. copper
d. iron
- 1654 The minimum clearance between the ground and a 220 kV line is about_____.
- a. 4.3 m
b. 5.5 m
c. 7.0 m
d. 10.5 m
- 1655 The spacing between phase conductors of a 220 kV line is approximately equal to_____.
- a. 2 m
b. 3.5 m
c. 6 m
d. 8.5 m
- 1656 Large industrial consumers are supplied electrical energy at
- a. 400 V
b. 11 kV
c. 66 kV
d. 400 kV
- 1657 In a D.C. 3-wire distribution system, balancer fields are cross-connected in order to_____.
- a. boost the generated voltage
b. balance loads on both sides of the neutral
c. make both machine^ run as unloaded motors
d. equalize voltages on the positive and negative outers
- 1658 In a D.C. 3-wire distributor using balancers and having unequal loads on the two sides_____.
- a. both balancers run as generators
b. both balancers run as motors
c. balancer connected to lightly-loaded side runs as a motor

- d. balancer connected to heavily-loaded side runs as a motor
- 1659 Transmitted power remaining the same, if supply voltage of a D.C. 2-wire feeder is increased 100 percent, saving in copper is_____.
- 25 percent
 - 50 percent
 - 75 percent
 - 100 percent
- 1660 A uniformly-loaded D.C. distributor is fed at both ends with equal voltages. As compared to a similar distributor fed at one end only, the drop at the middle point is_____.
- one-fourth
 - one-third
 - one-half
 - twice
 - none of the above
- 1661 As compared to a 2-wire D.C. distributor, a 3-wire distributor with same maximum voltage to earth uses only_____.
- 31.25 percent of copper
 - 33.3 percent of copper
 - 66.7 percent of copper
 - 125 percent of copper
- 1662 Which of the following is usually not the generating voltage?
- 6.6 kV
 - 8.8 kV
 - 11 kV
 - 13.2 kV
- 1663 For an overhead line, the surge impedance is taken as_____.
- 20-30 ohms
 - 70—80 ohms
 - 100—200 ohms
 - 500—1000 ohms
 - none of the above
- 1664 The presence of ozone due to corona is harmful because it_____.
- reduces power factor
 - corrodes the material
 - gives odour
 - transfer energy to the ground
 - none of the above
- 1665 A feeder, in a transmission system, feeds power to_____.
- distributors
 - generating stations
 - service mains
 - all of the above
- 1666 The power transmitted will be maximum when_____.
- corona losses are minimum
 - reactance is high
 - sending end voltage is more
 - receiving end voltage is more
- 1667 A 3-phase 4 wire system is commonly used on_____.
- primary transmission
 - secondary transmission
 - primary distribution
 - secondary distribution
- 1668 Which of the following materials is used for overhead transmission lines?
- Steel cored aluminium
 - Galvanized steel
 - Cadmium copper
 - Any of the above
- 1669 Which of the following is not a constituent for making porcelain insulators?
- Quartz
 - Kaolin
 - Felspar
 - Silica
- 1670 There is a greater possibility of occurrence of corona during_____.
- dry weather
 - winter
 - summer heat
 - humid weather
 - none of the above
- 1671 Which of the following relays is used on long transmission lines?

- a. Impedance relay
b. Mho's relay
c. Reactance relay
d. None of the above
- 1672 The steel used in steel core conductors is usually_____.
- a. alloy steel
b. stainless steel
c. mild steel
d. high speed steel
e. all of the above
- 1673 Which of the following distribution systems is more reliable?
- a. Radial system
b. Tree system
c. Ring main system
d. All are equally reliable
- 1674 Which of the following characteristics should the line supports for transmission lines possess?
- a. Low cost
b. High mechanical strength
c. Longer life
d. All of the above
- 1675 Transmission voltage of 11 kV is normally used for distances up to_____.
- a. 20—25 km
b. 40—50 km
c. 60—70 km
d. 80—100 km
- 1676 Which of the following regulations is considered best?
- a. 50%
b. 20%
c. 10%
d. 2%
- 1677 A conductor, due to sag between two supports, takes the form of_____.
- a. semi-circle
b. triangle
c. ellipse
d. catenary
- 1678 In A.C.S.R. conductors, the insulation between aluminium and steel conductors is_____.
- a. insulin
b. bitumen
c. varnish
d. no insulation is required
- 1679 Which of the following bus-bar schemes has the lowest cost?
- a. Ring bus-bar scheme
b. Single bus-bar scheme
c. Breaker and a half scheme
d. Main and transfer scheme
- 1680 Owing to skin effect_____.
- a. current flows through the half cross-section of the conductor
b. portion of the conductor near the surface carries more current and core of the conductor carries less current
c. portion of the conductor near the surface carries less current and core of the conductor carries more current
d. any of the above
e. none of the above
- 1681 By which of the following methods string efficiency can be improved?
- a. Using a guard ring
b. Grading the insulator
c. Using long cross arm
d. Any of the above
e. none of the above
- 1682 In aluminium conductors, steel core is provided to_____.
- a. compensate for skin effect
b. neutralize proximity effect
c. reduce line inductance
d. increase the tensile strength
- 1683 By which of the following a bus-bar is rated?
- a. Current only
b. Current and voltage
c. Current, voltage and frequency
d. Current, voltage, frequency and short time current

- 1684 A circuit is disconnected by isolators' when_____.
- line is energized
 - there is no current in the line
 - line is on full load
 - circuit breaker is not open
- 1685 For which of the following equipment current rating is not necessary?
- Circuit breakers
 - Isolators
 - Load break switch
 - Circuit breakers and load break switches
- 1686 In a substation the following equipment is not installed_____.
- exciters
 - series capacitors
 - shunt reactors
 - voltage transformers
- 1687 Corona usually occurs when the electrostatic stress in air around the conductor exceeds_____.
- 6.6 kV (r.m.s. value)/cm
 - 11 kV (r.m.s. value)/cm
 - 22 kV (maximum value)/cm
 - 30 kV (maximum value)/cm
- 1688 The voltage drop, for constant voltage transmission is compensated by installing_____.
- inductors
 - capacitors
 - synchronous motors
 - all of above
 - none of the above
- 1689 The use of strain type insulators is made where the conductors are_____.
- dead ended
 - at intermediate anchor towers
 - any of the above
 - none of the above
- 1690 The current drawn by the line due to corona losses is_____.
- non-sinusoidal
 - sinusoidal
 - triangular
 - square
- 1691 Pin type insulators are generally not used for voltages beyond_____.
- 1 kV
 - 11 kV
 - 22 kV
 - 33 kV
- 1692 Aluminium has a specific gravity of_____.
- 1.5
 - 2.7
 - 4.2
 - 7.8
- 1693 For transmission of power over a distance of 200 km, the transmission voltage should be_____.
- 132 kV
 - 66 kV
 - 33 kV
 - 11 kV
- 1694 For aluminium, as compared to copper, all the following factors have higher values except_____.
- specific volume
 - electrical conductivity
 - co-efficient of linear expansion
 - resistance per unit length for same cross-section
- 1695 Which of the following equipment, for regulating the voltage in distribution feeder, will be most economical?
- Static condenser
 - Synchronous condenser
 - Tap changing transformer
 - Booster transformer
- 1696 In a tap changing transformer, the tappings are provided on
- primary winding
 - secondary winding
 - high voltage winding
 - any of the above

- 1697 Constant voltage transmission entails the following disadvantage_____.
- large conductor area is required for same power transmission
 - short-circuit current of the system is increased
 - either of the above
 - none of the above
- 1698 On which of the following factors skin effect depends?
- Frequency of the current
 - Size of the conductor
 - Resistivity of the conductor material
 - All of the above
- 1699 The effect of corona can be detected by_____.
- presence of ozone detected by odour
 - hissing sound
 - faint luminous glow of bluish colour
 - all of the above
- 1700 For transmission of power over a distance of 500 km, the transmission voltage should be in the range_____.
- 150 to 220 kV
 - 100 to 120 kV
 - 60 to 100 kV
 - 20 to 50 kV
- 1701 In the analysis of which of the following lines shunt capacitance is neglected?
- Short transmission lines
 - Medium transmission lines
 - Long transmission lines
 - Medium as well as long transmission lines
- 1702 When the interconnector between two stations has large reactance_____.
- the transfer of power will take place with voltage fluctuation and noise
 - the transfer of power will take place with least loss
 - the stations will fall out of step be-cause of large angular displacement between the stations
 - none of the above
- 1703 The frequency of voltage generated, in case of generators, can be increased by_____.
- using reactors
 - increasing the load
 - adjusting the governor
 - reducing the terminal voltage
 - none of the above
- 1704 When an alternator connected to the bus-bar is shut down the bus-bar voltage will_____.
- fall
 - rise
 - remain unchanged
 - none of the above
- 1705 The angular displacement between two interconnected stations is mainly due to_____.
- armature reactance of both alternators
 - reactance of the interconnector
 - synchronous reactance of both the alternators
 - all of the above
- 1706 Electro-mechanical voltage regulators are generally used in_____.
- reactors
 - generators
 - transformers
 - all of the above
- 1707 Series capacitors on transmission lines are of little use when the load VAR requirement is_____.
- large
 - small
 - fluctuating
 - any of the above
- 1708 The voltage regulation in magnetic amplifier type voltage regulator is effected by_____.
- electromagnetic induction

- b. varying the resistance
c. varying the reactance
d. variable transformer
- 1709 When a conductor carries more current on the surface as compared to core, it is due to_____.
- a. permeability variation
b. corona
c. skin effect
d. unsymmetrical fault
e. none of the above
- 1710 The following system is not generally used
- a. 1-phase 3 wire
b. 1-phase 4 wire
c. 3-phase 3 wire
d. 3-phase 4 wire
- 1711 The skin effect of a conductor will reduce as the_____.
- a. resistivity of conductor material increases
b. permeability of conductor material increases
c. diameter increases
d. frequency increases
- 1712 When a live conductor of public electric supply breaks down and touches the earth which of the following will happen?
- a. Current will flow to earth
b. Supply voltage will drop
c. Supply voltage will increase
d. No current will flow in the conductor
e. none of the above
- 1713 Which of the following protects a cable against mechanical injury?
- a. Bedding
b. Sheath
c. Armouring
d. None of the above
- 1714 Which of the following insulation is used in cables?
- a. Varnished cambric
b. Rubber
c. Paper
d. Any of the above
- 1715 In a cable immediately above metallic sheath_____is provided.
- a. earthing connection
b. bedding
c. armouring
d. none of the above
- 1716 The current carrying capacity of cables in D.C. is more than that in A.C. mainly due to_____.
- a. absence of harmonics
b. non-existence of any stability limit
c. smaller dielectric loss
d. absence of ripples
e. none of the above
- 1717 In case of three cores flexible cable the colour of the neutral is_____.
- a. blue
b. black
c. brown
d. none of the above
- 1718 _____cables are used for 132 kV lines.
- a. High tension
b. Super tension
c. Extra high tension
d. Extra super voltage
- 1719 Conduit pipes are normally used to protect_____cables.
- a. unsheathed cables
b. armoured
c. PVC sheathed cables
d. all of the above
- 1720 In the cables, the location of fault is usually found out by comparing_____.
- a. the resistance of the conductor
b. the inductance of conductors
c. the capacitances of insulated conductors
d. all above parameters
- 1721 In capacitance grading of cables we use a_____dielectric.
- a. composite
b. porous

- c. homogeneous
d. hygroscopic
- 1722 If the length of a cable is doubled, its capacitance_____.
- a. becomes one-fourth
b. becomes one-half
c. becomes double
d. remains unchanged
- 1723 The inter sheaths in the cables are used to_____.
- a. minimize the stress
b. avoid the requirement of good insulation
c. provide proper stress distribution
d. none of the above
- 1724 Copper as conductor for cables is used as_____.
- a. annealed
b. hardened and tempered
c. hard drawn
d. alloy with chromium
- 1725 If an alternator is supplying load of 350 kW at 0.6 pf lagging and its power factor is raised to unity then to supply the alternator for the same kVA loading, the extra required kilowatts will be_____.
- a. 205 kW
b. 212 kW
c. 233 kW
d. 246 kW
- 1726 The Indian electricity rules of 1956 cover:
- a. Inspections of electric installations
b. Licensing
c. General safety precautions
d. Only (b) and (c)
e. All of these
- 1727 Energy conservation act was formed in the year_____.
- a. 1998
b. 1999
c. 2000
d. 2001
- 1728 The rules of a particular electricity supply system provision for metering, earthing and for other installation matters are in accordance with the electricity supply act of_____.
- a. 1947
b. 1948
c. 1956
d. 1958
- 1729 Which among the following is not the pronged approach to energy management?
- a. Capacity utilization
b. Fine turning of equipment
c. Technology up gradation
d. All of these
e. None of these
- 1730 Phase advancers are used to improve the power factor of_____.
- a. Induction motors
b. Induction generators
c. Synchronous motors
d. Synchronous generators
- 1731 If power factor is less than unity then it will result in_____.
- a. Large kVA rating of equipment
b. Greater conductor size
c. Large copper losses
d. Only (a) and (c)
e. All of these
- 1732 If the load current decreases then the power factor_____.
- a. Will also decrease
b. Will increase
c. Will remains unchanged
d. None of these
- 1733 The capital cost of generating equipment, transmission system and distribution system comes under
- a. Fixed capital
b. Running capital
c. Both fixed and running capital
d. All of these
e. None of these

- 1734 For a typical AC power supply, the secondary transmission carries the voltage of _____.
- 11kV
 - 33 kV
 - 66 kV
 - 132 kV
- 1735 The reduction of utility load primarily during peak demand is known as _____.
- Peak clipping
 - Load shifting
 - Valley filling
 - MTP analysis
- 1736 EPRI stands for _____.
- European power research institute
 - Electrical power Russian institute
 - Electrical power research institute
 - Electrical power research industries
- 1737 IFMA stands for _____.
- International Facility Management Association
 - Indian Facility Management Association
 - International Facility Management Academy
 - Indian Facility Management Academy
- 1738 Maximum demand charges are given in _____.
- kWh
 - kVA
 - kVAr
 - All of these
 - None of these
- 1739 Which among the following fuel is not available for thermal energy supply?
- LSHS
 - LDO
 - LPG
 - None of these
- 1740 Energy management is a key component of _____.
- Environmental management
 - Carbon management
 - Nitrogen management
 - Water management
- 1741 The main objective of energy management is to _____.
- Minimize energy cost
 - Minimum environmental effects
 - Maintain optimum energy procurement and utilization
 - Only (a) and (b)
 - All of these
- 1742 LNG stands for _____.
- Liquefied natural gas
 - Liquid natural gas
 - Low nitrogen content gas
 - Liquid nitrogen gas
- 1743 Which is the major energy source to meet the Indian energy demand?
- Coal
 - Oil
 - Natural gas
 - Lignite
- 1744 What is the main disadvantage of phase advancers?
- Cannot be used for motors below 200 H.P
 - Produces noise
 - Can be used where synchronous motor is unadmissible
 - None of these
- 1745 What is the advantage of the static capacitors?
- Low losses
 - Easy installation
 - Lower maintenance
 - All of the above
- 1746 Power factor can be improved by connecting which among these?
- Static capacitors.
 - Resistors.
 - Synchronous condensers.
 - Both (a) and (c).
- 1747 For which among the following consumers is penalty imposed for low power factor?
- Residential and commercial consumers.

- b. Industrial consumers.
c. Agricultural consumers.
d. All of the above.
- 1748 For a consumer what is the most economical power factor?
a. 0.25 – 0.5 lagging
b. 0.25 – 0.5 leading
c. 0.85 – 0.95 lagging
d. 0.85 – 0.95 leading
- 1749 Lower power factor is usually not due to_____.
a. Discharge lamp
b. Arc lamps
c. Incandescent lamps
d. Induction furnace
- 1750 Which among the following happens in a low power factor?
a. Large kVA rating of the equipment.
b. Greater conductor size.
c. Reduced handling capacity of the system.
d. All of the above.
- 1751 Which tariff is also known as the average power factor tariff?
a. Sliding scale tariff
b. kW tariff
c. kVAR tariff
d. kVA maximum demand tariff
- 1752 A consumer having lower power factor contributes towards which factor?
a. Semi fixed charges.
b. Fixed charges.
c. Running charges.
d. Penalty is imposed.
- 1753 What is/are the consequence/s of low power factor?
a. Increases the rating of station equipments only
b. Only line losses increases
c. Both (a) and (b)
d. None of these
- 1754 What is the power factor tariff?
a. It considers only maximum demand.
- b. It considers only semi fixed charges and the power factor.
c. It considers only power factor.
d. It considers the load factor.
- 1755 Why is a big consumer charged at a lower rate than the small consumer?
a. Their maximum demand is small.
b. It improves the load factor.
c. Both (a) and (b).
d. None of these.
- 1756 Why is Maximum demand tariff not applicable to domestic consumers?
a. Low maximum demand
b. Low load factor
c. Lower energy consumption
d. Low power factor
- 1757 Maximum demand tariff is applied for which kind of consumers?
a. Big consumers
b. Small consumers
c. Residential consumers
d. All of these
- 1758 What is the difference between two part tariff and maximum demand tariff?
a. A separate meter is used
b. A separate maximum demand meter is used
c. Semi fixed charges are also included
d. All of these
- 1759 Which tariff is most ideal tariff for the consumer?
a. Two part tariff
b. Three part tariff
c. Both (a) and (b)
d. None of the above
- 1760 Which among the following are included in the three part tariff? i. Fixed charges, ii. Running charges, iii. Semi fixed charges.
a. i, ii and iii
b. i and ii
c. i and iii
d. ii and iii

- 1761 What is the main disadvantage of two part tariff?
 a. He has to pay semi fixed charges.
 b. He has to pay fixed charges.
 c. He has to pay running charges.
 d. None of the above.
- 1762 A variable charge is based on what?
 a. Energy consumption
 b. Maximum demand
 c. Peak load demand
 d. All of the above
- 1763 Fixed charge is dependent on what factor?
 a. Energy consumption
 b. Maximum demand
 c. Peak load demand
 d. All of the above
- 1764 Two part tariff is charged on what basis?
 a. Connected load
 b. Units consumed
 c. Maximum demand
 d. Both (b) and (c)
- 1765 Block rate tariff, where energy charge decreases with the increase in energy consumption,
 a. Encourages the consumers for more consumption.
 b. Discourages the consumers for more consumption.
 c. Encourages the consumers to restrict their demand.
 d. Encourages the consumers to improve the power factor.
- 1766 Which tariff is used by the small commercial consumers?
 a. Maximum demand tariff
 b. Block rate tariff
 c. Three part tariff
 d. Two part tariff
- 1767 Domestic consumers are charged _____.
 a. Flat demand tariff
 b. Block rate tariff
 c. Flat rate tariff
 d. Off peak tariff
- 1768 Flat rate tariff is charged on what basis?
 a. Connected load.
 b. Units consumed.
 c. Maximum demand.
 d. All of these
 e. None of these
- 1769 What is tariff?
 a. The rate at which electrical energy is produced in the plant.
 b. The rate at which electrical energy is supplied to the consumers.
 c. Both (a) and (b).
 d. None of these.
- 1770 A transformer costing Rs 90,000 has a useful life of 20 years. Determine the annual depreciation charge using straight line method. Assume salvage to be Rs.15,000
 a. Rs.4000
 b. Rs.3750
 c. Rs.4350
 d. Rs.3500
- 1771 What is meant by semi fixed charges?
 a. It is the cost which is independent of maximum demands and units generated.
 b. It is the cost which depends only on the units generated.
 c. It is the cost which depends upon the maximum demand but it is independent of units generated.
 d. None of these.
- 1772 The capital cost of a power plant depends on_____.
 a. Total installed capacity only
 b. Total number of units only
 c. Both (a) and (b)
 d. None of these
- 1773 What does the annual fixed cost include?
 a. Fuel, maintenance cost and labour
 b. Interest, taxes, insurance and depreciation
 c. Both (a) and (b)

- d. None of the above
- 1774 Which components are included in the annual operating cost?
- Fuel, maintenance cost and labour
 - Interest, taxes, insurance and depreciation
 - Both (a) and (b)
 - None of the above
- 1775 What are fixed charges?
- Cost of investment irrespective of energy generated.
 - Operating cost of the fuel along with cost of investment plant.
 - Operating cost only.
 - None of the above
- 1776 Generators for the base load plants are usually designed for maximum efficiency around _____.
- 20% overload
 - Full load
 - 75% full load
 - None of these
- 1777 Why is load shedding done?
- Reducing peak demand on the system.
 - Repairing of machines.
 - Power factor improvement.
 - Efficient operation of equipment.
- 1778 What happens in a load shedding?
- System voltage is reduced.
 - System frequency is reduced.
 - System loads are switched off.
 - System power factor is changed.
- 1779 For a nuclear plant, what is its useful life?
- 10 years.
 - 30 years
 - 100 years
 - 60 years
- 1780 Annual operating cost of a generating plant consists of _____.
- Fixed charges
 - Semi fixed charges
 - Operating or running charges
- d. All of these
- e. None of these
- 1781 What are the essential requirements for power plants to be operated as peak load plants?
- Capability of quick start, synchronization and taking up of system load.
 - Quick response to load variations.
 - Low capital cost.
 - All of these.
 - None of these.
- 1782 What is the modern trend in electric power generation?
- To have a large number of small size thermal plants located at different places.
 - To have large size thermal plants near load centre.
 - To have large size thermal plants located near coal fields.
 - None of the above.
- 1783 Major share of power generated in India is through which means?
- Hydroelectric power plants.
 - Nuclear power plants.
 - Thermal power plants.
 - Gas turbine power plants.
- 1784 The yearly load duration curve of a power plant is a straight line. The maximum load is 850 MW and minimum load is 650 MW. The capacity of the plant is 950 MW. What is the capacity factor and the utilization factor?
- 0.89, 0.78
 - 0.83, 0.65
 - 0.78, 0.89
 - 0.65, 0.83
- 1785 A consumer consumes 400 kWh per day at a load factor of 0.3. If he increases the load factor to 0.6 without any increase in maximum demand. What is the consumption of energy in kWh?
- 800 kWh
 - 650 kWh

- c. 1125 kWh
d. 425 kWh
- 1786 Utilization factor is defined as the ratio of _____.
- Average demand to the rated capacity of the plant.
 - Maximum demand on the power plant to the rated capacity of the power plant.
 - Rated capacity of the power plant to the maximum demand.
 - None of these
- 1787 Determine the average demand of a plant if its load factor and maximum demand are 0.60 and 30 MW.
- 20 MW
 - 18 MW
 - 50 MW
 - 13 MW
- 1788 A generating station has a connected load of 55 MW and maximum demand of 20 MW. What is the demand factor?
- 0.4785
 - 0.3636
 - 2.75
 - 1100
- 1789 The maximum demand on the power system is 100 MW. If the annual load factor is 40%. Calculate the total energy generated in a year.
- $3761 * 105\text{kWh}$
 - $4174 * 105\text{kWh}$
 - $3504 * 105\text{kWh}$
 - $3500 * 105\text{kWh}$
- 1790 The power system experiences peak demand from _____.
- Midnight to 8 A.M
 - 8 A.M to 2 P.M
 - 2 P.M to 6 P.M
 - 6 P.M to 10 P.M
- 1791 What is connected load?
- Installed electrical load in the premises of the consumer.
 - Maximum load a consumer draws.
 - Load drawn by a consumer at any instant.
 - None of the above.
- 1792 What is the value of demand factor?
- Greater than unity.
 - Less than unity.
 - Always more than unity.
 - Normally more than unity.
- 1793 What is the result of the product of diversity factor and maximum demand?
- Average demand
 - Sum of consumers maximum demand
 - Installed capacity
 - Generated power
- 1794 A large diversity factor of the load in a power system _____.
- Reduces the installation cost.
 - Increases the installation cost.
 - Does not affect the installation cost.
 - None of the above
- 1795 Diversity factor is helpful in computing which of the following factors?
- Plant capacity
 - Average load
 - Units generated (kWh)
 - Peak demand
- 1796 What is operating value of diversity factor?
- Greater than unity
 - Less than unity
 - Always more than unity
 - Normally more than unity
- 1797 What is the diversity factor?
- A ratio of kWh generated to the product of plant capacity and the number of hours for which the plant is in operation.
 - The ratio of sum of individual maximum demands to the maximum demand on power stations.
 - The ratio of actual energy produced to the maximum possible energy.

- d. The ratio of maximum demand on the power station to the connected load.
- 1798 In a power station, the cost of generation of power reduces most effectively when_____.
- Diversity factor alone increases.
 - Both diversity factor and load factor increases.
 - Only load factor increases.
 - Both diversity factor and load factor decreases.
- 1799 A thermal generating station has an installed capacity of 15 MW and supplies a daily load of 10 Mw for 12 hours and 5 MW for remaining 12 hours. The plant capacity factor for this station is_____.
- 1
 - 0.75
 - 0.67
 - 0.5
- 1800 Capacity factor will be very low when the power plant _____.
- is operated as base load plant
 - is operated for supplying base load as well as the peak loads
 - is operated in emergency only
 - is under maintenance
- 1801 What is the plant capacity factor?
- A ratio of kWh generated to the product of plant capacity and the number of hours for which the plant is in operation.
 - The ratio of sum of individual maximum demands to the maximum demand on power stations.
 - The ratio of actual energy produced to the maximum possible energy.
 - The ratio of maximum demand on the power station to the connected load.
- 1802 An industrial consumer has a load pattern of 2000 kW 0.8 lag for 12 hours and 1000 kW unity power factor for 12 hours. What is the load factor?
- 0.5
 - 0.55
 - 0.6
 - 0.75
- 1803 The load factor plays a key role in determining which among the following?
- Plant capacity
 - Overall cost per unit generated
 - Overall demand
 - Both (a) and (c)
- 1804 What is the load factor of a power plant?
- Greater than unity
 - Less than unity
 - Always more than unity
 - Normally more than unity
- 1805 What is a load factor?
- The ratio of average to maximum demand.
 - The ratio of maximum demand to average load.
 - The product of maximum demand and average load.
 - The ratio of average load to the plant capacity.
- 1806 What does the chronological load curve indicate?
- Variation in demand factor during 24 hours.
 - Variation of demand from instant to instant during 24 hour.
 - The total energy consumed up to different times of the day.
 - The total number of hours for which a particular load lasts during the day.
- 1807 Maximum and Minimum loads on the load duration curve is represented on which respective side?
- Left and Right.
 - Right and Left.

- c. Randomly.
d. None of these.
- 1808 What is the shape of the load duration curve?
a. Rectangular shape
b. Triangular shape
c. Parabolic shape
d. Free hand sketch
- 1809 What does a load duration curve represent?
a. The variation of load during different hours of the day
b. Average load
c. The number of hours for which a particular lasts during the day
d. None of the above
- 1810 The mass curve is plotted from which of the following curve?
a. Chronological curve
b. Energy load curve
c. Load duration curve
d. None of these
- 1811 What does a mass curve represent?
a. Average load
b. The total energy consumed by the load up to a particular time in a day
c. The number of hours for which a particular lasts during the day
d. The variation of load during different hours of the day
- 1812 If the daily load curve is divided by 24, what does this curve represent?
a. Average load for the day
b. Connected load
c. Maximum demand
d. Demand factor
- 1813 Load curve of a generation is always_____.
a. Positive slope
b. Zero slope
c. Negative slope
d. Combination of (a), (b) and (c)
- 1814 What does the highest point on the daily load curve represent?
a. Peak load
b. Maximum demand
c. Both (a) & (d)
d. None of these
- 1815 What does the area under the load curve represent?
a. System voltage
b. Current
c. Energy consumed
d. Maximum demand
- 1816 What is a load curve?
a. A plot of load vs. current.
b. A plot of load vs. time.
c. A plot of load vs. duration of time.
d. Total number of units generated vs. time.
- 1817 In geo thermal power plants waste water is_____.
a. Discharged back to earth.
b. Discharged into the sea.
c. Re-circulated after cooling in cooling towers.
d. Evaporated in ponds.
- 1818 Direct conversion of heat energy into electrical energy is possible through_____.
a. MHD generators
b. Fuel or solar cells
c. Thermionic converters.
d. Both (a) and (c)
e. None of these
- 1819 Presence of non – condensable gasses in a geo - pressured water causes_____.
a. Pollution problem
b. Corrosion problem
c. Flow problem
d. All of the above
- 1820 The function of a solar collector is of converting solar energy into_____.
a. Radiations
b. Electrical energy directions
c. Thermal energy
d. All of the above

- 1821 Reflector mirrors used for exploiting the solar energy are called_____.
- Mantle
 - Heliostats
 - Diffusers
 - Ponds
- 1822 A pyrometer is used for the measurements of_____.
- Diffuse radiations only.
 - Direct radiations only.
 - Both direct and diffused radiations.
 - None of the above.
- 1823 The current density of a photo voltaic cell ranges from_____.
- 10 – 20 mA/cm²
 - 40 – 50 mA/cm²
 - 20 – 40 mA/cm²
 - 60 – 100 mA/cm²
- 1824 What is the maximum possible output of a solar array?
- 300 W/m²
 - 100 W/m²
 - 250 W/m²
 - 500 W/m²
- 1825 For satellites the source of energy is_____.
- Solar cell
 - Fuel cells
 - Edison cells
 - Cryogenic storage
- 1826 The efficiency of the solar cell is about_____.
- 25 %
 - 15 %
 - 40 %
 - 60 %
- 1827 A module in a solar panel refers to_____.
- series arrangement of solar cells
 - parallel arrangement of solar cells
 - series and parallel arrangement of solar cells
 - none of the above
- 1828 What is supercharging?
- Pumping of air into the cylinder at the pressure greater than atmospheric pressure.
 - Pumping of air out of the cylinder at the pressure greater than atmospheric pressure.
 - Pumping of air into the cylinder at the pressure lower than atmospheric pressure.
 - Pumping of air out of the cylinder at the pressure lower than atmospheric pressure.
- 1829 Which type of cylinder configuration is commonly used?
- Vertical – in line
 - V – type
 - Horizontal type
 - All of these
- 1830 Which among the following instruments are provided on the exhaust line to reduce the pressure?
- Ducts
 - Muffler
 - Strainers
 - Purifiers
- 1831 It is very much necessary to treat the makeup water to remove the scale forming the impurities. Which treatment is used?
- Zeolite softener
 - Lime or lime soda treatment
 - Both (a) and (b)
 - None of the above
- 1832 What is the ranging capacity of the diesel plant?
- 50 – 750 kW
 - 100 – 1175 kW
 - 75 – 3750 kW
 - 150 – 4575 kW
- 1833 The diesel plants are mainly used _____.
- as peak load plants
 - as base load plants
 - as standby power plants
 - both peak and stand by plants

- 1834 The speed of the diesel engine may vary from_____.
- 0 – 100 rpm
 - 200 – 1000 rpm
 - 500 -5000 rpm
 - 1000 – 3000 rpm
- 1835 In a 2 stroke engine, the operation cycle are completed in how many strokes and revolution?
- 4 strokes and 2 revolutions
 - 2 stroke and 2 revolutions
 - 2 strokes and 1 revolution
 - 4 stroke and 4 revolutions
- 1836 Which among these plants are most efficient?
- Open cycle
 - Combined cycle
 - Closed cycle
 - None of these
- 1837 Which material is used for the manufacture of the turbine blades?
- Stainless steel
 - Carbon steel
 - High nickel alloy
 - High alloy steel
- 1838 What is meant by inter cooling?
- Removal of heat from compressed air between stages of compression.
 - Transfer of heat energy from exhaust gases to the compressed air flowing between compressor and the combustion chamber.
 - To increase the temperature of partially expanded gases by burning more fuel.
 - None of the above
- 1839 What is regeneration?
- Removal of heat from compressed air between stages of compression.
 - Transfer of heat energy from exhaust gases to the compressed air flowing between compressor and the combustion chamber.
 - To increase the temperature of partially expanded gases by burning more fuel.
 - None of these
- 1840 Which among these are used to improve the efficiency of gas turbines?
- Regenerator.
 - Inter cooling.
 - Reheating.
 - All of these.
- 1841 The efficiency of the open cycle gas plant is quite low. Why?
- Gas gets cooled before reaching the turbine wheels.
 - A lot of mechanical energy is used up by the compressor.
 - Both (a) and (b).
 - None of these
- 1842 What would be the temperature of the gas in the combustion chamber?
- 500 °C
 - 1600 °C
 - 1200 °C
 - 650 °C
- 1843 The compressor has to be started
- Before starting the gas turbine.
 - After starting the gas turbine.
 - Simultaneously with starting of gas turbine.
 - At any time during the operation.
- 1844 The heating value of gaseous fuels is about_____.
- 500 kJ/litre
 - 30 kJ/litre
 - 100 kJ/litre
 - 10 kJ/litre
- 1845 The gas turbine power plant mainly uses which among the following fuels?
- Coal and Peat
 - Kerosene oil and diesel oil and residual oil
 - Gas oil
 - Natural gas and liquid petroleum fuel
- 1846 Which among these is the main component of a gas turbine plant?

- a. Condenser
b. Compressor
c. Boiler
d. None of these
- 1847 Name the turbine developed on the basis of aircraft engine technology.
- a. Brayton
b. Aerodynamic
c. Aero derivative
d. Rankine
- 1848 Combined cycle power plants are suitable for _____.
- a. Base loads.
b. Peak loads.
c. Intermediate loads.
d. Both base and peak loads.
- 1849 Gas turbine plants are not used _____.
- a. as peak load plants
b. as base load plants
c. as standby power plants
d. in combination with the steam power plants
- 1850 The gas turbines are mainly used in _____.
- a. Locomotives
b. Aircrafts
c. Automobiles
d. Pumping stations
- 1851 On which cycle does the gas turbine work?
- a. Carnot cycle
b. Brayton cycle
c. Dual cycle
d. Rankine cycle
- 1852 A 100 MW steam station uses coal of calorific value of 5780 kcal/kg. The thermal efficiency is about 30% and the electrical efficiency is 93%. What would be the coal consumption per hour, when the station is delivering its full rated output?
- a. 48672 kg
b. 53330 kg
c. 71876 kg
d. 31826 kg
- 1853 What is the overall efficiency of the thermal plant?
- a. The ratio of heat equivalent of electrical output to the heat of combustion of coal.
b. The ratio of heat of combustion of coal to the heat equivalent of electrical output.
c. The ratio of heat equivalent of mechanical energy transmitted to the turbine shaft to the heat of combustion of coal.
d. The ratio of heat of combustion of coal to the heat equivalent of mechanical energy transmitted to the turbine shaft.
- 1854 The thermal efficiency of a steam plant is defined as _____.
- a. The ratio of heat equivalent of electrical output to the heat of combustion of coal.
b. The ratio of heat of combustion of coal to the heat equivalent of electrical output.
c. The ratio of heat equivalent of mechanical energy transmitted to the turbine shaft to the heat of combustion of coal.
d. The ratio of heat of combustion of coal to the heat equivalent of mechanical energy transmitted to the turbine shaft.
- 1855 Ash handling system is mainly divided into _____ systems.
- a. Mechanical handling
b. Pneumatic
c. Hydraulic
d. All of these
- 1856 What is the important factor in fuel selection?
- a. Cost of fuel.
b. Calorific value
c. Both (a) & (b)
d. None of these

- 1857 Why is pulverized coal used?
 a. Better burning.
 b. Increased calorific value of coal.
 c. Medium size units.
 d. Less radiation loss.
- 1858 What is pulverised coal?
 a. Non smoking coal.
 b. Coal free from ash.
 c. Coal broken into fine particles.
 d. Coal which burns for long time.
- 1859 Which of the following is/are an/ the essential element/s for the combustion of fuel?
 a. Oxygen
 b. Correct fuel air ratio.
 c. Proper ignition temperature.
 d. All of these.
- 1860 What is the percentage of ash content in Indian coal?
 a. 5 %
 b. 10 %
 c. 20 %
 d. 30 %
- 1861 The elements those are combustible in the fuel are _____.
 a. Carbon and hydrogen.
 b. Carbon, hydrogen and ash.
 c. Carbon, hydrogen and sulphur.
 d. Carbon, nitrogen and ash.
- 1862 On which factor does the calorific value of coal depend?
 a. Ash content.
 b. Size of coal particles
 c. Moisture content.
 d. Volatile material.
- 1863 The major content of coal in India is _____.
 a. Dust
 b. Ash
 c. Fly ash
 d. Cinder
- 1864 The coal with highest ash content is _____.
 a. Lignite
 b. Steam coal
 c. Coking coal
 d. Bituminous coal
- 1865 What is the superior quality of coal called?
 a. Anthracite
 b. Coke
 c. Bituminous
 d. Peat
- 1866 Name the system that is mainly employed for the disposal of fly ash.
 a. Pneumatic
 b. Hydraulic
 c. Both (a) & (b)
 d. Steam jet system
- 1867 The best coal suitable for the production of energy is _____.
 a. Lignite
 b. Bituminous
 c. Anthracite
 d. Peat
- 1868 Evaporative type of condenser has _____.
 a. Water in pipes surrounded by steam outside.
 b. Steam and cooling water mixed to give the condensate.
 c. Steam in pipes surrounded by water.
 d. None of the above.
- 1869 Spray ponds are used to cool the warm water coming from the condenser in _____.
 a. Large power plants
 b. Small power plants
 c. Medium power plants
 d. Both medium and large power plants.
- 1870 What is use of the air pumps in the condenser?
 a. Remove water
 b. Air leaking in the condenser and to maintain the vacuum
 c. Maintain atmospheric pressure and the condenser
 d. Both (a) & (b)

- 1871 Water used in the steam plant is used for cooling in_____.
- Condenser
 - Turbine only
 - Boiler tube
 - Boiler tubes and turbines
- 1872 A condenser condenses the steam coming out from_____.
- Boiler
 - Turbine
 - Economizer
 - Super heater
- 1873 The draught produced by the chimney is_____.
- Forced draught
 - Natural draught
 - Induced draught
 - Balanced draught
- 1874 The definition of the draught system is_____.
- A device used to pull in air.
 - The difference between absolute gas pressure at any point in a gas flow and the ambient atmospheric pressure.
 - The sum of the absolute gas pressure at any point in a gas flow and the ambient atmospheric pressure.
 - A device used to pull out air.
- 1875 Air- pre-heater in a steam power plant_____.
- Recovers the heat from the flue gases leaving the economizer.
 - Improves combustion rate.
 - Raises the temperature of the furnace gases.
 - All of these.
- 1876 The use of air pre-heater increase the temp of the air by about_____.
- 50°
 - 20°
 - 5°
 - 30°
- 1877 The reheat factor in a steam turbines depend on_____.
- Stage efficiency.
 - Initial pressure and temperature.
 - Exit pressure.
 - All of the above.
- 1878 The governing principle of steam turbines is_____.
- Nozzle control governing
 - Throttle governing
 - Bypass governing
 - All of these
- 1879 The pipes carrying the steam are made of_____.
- Steel
 - Cast iron
 - Aluminium
 - Cobalt
- 1880 A steam turbine with no nozzle is _____.
- Reaction turbine
 - Impulse turbine
 - Both (a) and (b)
 - None of these
- 1881 Turbo alternators run at speeds_____.
- Constant speed of 3000 rpm.
 - Constant speed of 1000 rpm.
 - A variable speed of above 1000 rpm.
 - None of the above

PART-II(B)

**ANSWER KEYS
FOR**

**ELECTRICAL
SUPERVISOR CERTIFICATE OF COMPETENCY (SCC)-HT
AND
CHARTERED ELECTRICAL SAFETY ENGINEER (CESE)-
UPTO 11KV**

1.	a	49.	a	97.	b	145.	b	192.	c	240.	b	288.	d	336.	b
2.	a	50.	b	98.	c	146.	b	193.	d	241.	a	289.	b	337.	a
3.	d	51.	b	99.	b	147.	b	194.	c	242.	c	290.	c	338.	c
4.	a	52.	d	100.	b	148.	b	195.	b	243.	b	291.	d	339.	a
5.	d	53.	b	101.	b	149.	b	196.	d	244.	a	292.	a	340.	d
6.	c	54.	d	102.	a	150.	c	197.	a	245.	a	293.	d	341.	d
7.	d	55.	b	103.	b	151.	d	198.	c	246.	d	294.	c	342.	a
8.	b	56.	b	104.	b	152.	c	199.	c	247.	c	295.	c	343.	b
9.	c	57.	a	105.	d	153.	c	200.	c	248.	a	296.	d	344.	d
10.	d	58.	d	106.	c	154.	c	201.	b	249.	d	297.	c	345.	a
11.	c	59.	a	107.	b	155.	c	202.	a	250.	a	298.	a	346.	d
12.	c	60.	a	108.	d	156.	d	203.	d	251.	b	299.	b	347.	c
13.	c	61.	a	109.	d	157.	c	204.	b	252.	b	300.	a	348.	d
14.	b	62.	d	110.	a	158.	a	205.	d	253.	c	301.	b	349.	a
15.	d	63.	a	111.	c	159.	c	206.	b	254.	c	302.	c	350.	c
16.	d	64.	a	112.	d	160.	c	207.	a	255.	a	303.	d	351.	b
17.	b	65.	a	113.	c	161.	c	208.	a	256.	b	304.	a	352.	b
18.	d	66.	a	114.	b	162.	c	209.	b	257.	d	305.	b	353.	d
19.	b	67.	a	115.	a	163.	d	210.	a	258.	b	306.	c	354.	d
20.	d	68.	d	116.	c	164.	a	211.	c	259.	d	307.	b	355.	d
21.	d	69.	a	117.	c	165.	e	212.	c	260.	c	308.	a	356.	c
22.	c	70.	c	118.	c	166.	e	213.	d	261.	a	309.	a	357.	a
23.	b	71.	d	119.	d	167.	b	214.	c	262.	c	310.	b	358.	c
24.	b	72.	b	120.	a	168.	b	215.	a	263.	d	311.	d	359.	c
25.	c	73.	c	121.	a	169.	c	216.	a	264.	b	312.	b	360.	a
26.	a	74.	b	122.	c	170.	d	217.	b	265.	b	313.	b	361.	b
27.	a	75.	a	123.	b	171.	d	218.	d	266.	c	314.	d	362.	d
28.	a	76.	a	124.	a	172.	a	219.	b	267.	b	315.	c	363.	c
29.	a	77.	d	125.	b	173.	a	220.	d	268.	b	316.	e	364.	c
30.	a	78.	a	126.	d	174.	c	221.	d	269.	b	317.	d	365.	d
31.	a	79.	b	127.	d	175.	d	222.	c	270.	a	318.	d	366.	c
32.	a	80.	d	128.	b	176.	d	223.	a	271.	a	319.	b	367.	c
33.	a	81.	c	129.	a	177.	b	224.	a	272.	c	320.	b	368.	d
34.	a	82.	c	130.	a	178.	a	225.	c	273.	a	321.	a	369.	a
35.	a	83.	c	131.	c	179.	c	226.	a	274.	c	322.	c	370.	d
36.	a	84.	b	132.	a	180.	d	227.	b	275.	c	323.	a	371.	b
37.	a	85.	b	133.	a	181.	a	228.	c	276.	d	324.	a	372.	c
38.	a	86.	b	134.	a	182.	c	229.	c	277.	c	325.	c	373.	d
39.	a	87.	b	135.	d	183.	c	230.	d	278.	c	326.	a	374.	b
40.	a	88.	a	136.	d	184.	a	231.	c	279.	d	327.	a	375.	c
41.	c	89.	b	137.	c	185.	d	232.	c	280.	b	328.	c	376.	d
42.	d	90.	b	138.	d	186.	c	233.	d	281.	a	329.	d	377.	d
43.	a	91.	a	139.	b	187.	d	234.	a	282.	d	330.	a	378.	d
44.	a	92.	c	140.	b	188.	d	235.	c	283.	a	331.	c	379.	d
45.	d	93.	b	141.	d	189.	a	236.	c	284.	c	332.	d	380.	d
46.	b	94.	d	142.	c	190.	a	237.	a	285.	d	333.	c	381.	d
47.	b	95.	b	143.	d	191.	a	238.	a	286.	a	334.	d	382.	b
48.	c	96.	b	144.	c			239.	b	287.	c	335.	d	383.	b

384.	b	432.	d	480.	d	528.	a	576.	b	624.	d	672.	d	720.	b
385.	d	433.	b	481.	a	529.	c	577.	c	625.	b	673.	c	721.	c
386.	d	434.	c	482.	c	530.	c	578.	b	626.	b	674.	b	722.	b
387.	c	435.	a	483.	c	531.	d	579.	b	627.	a	675.	a	723.	a
388.	d	436.	c	484.	a	532.	d	580.	d	628.	c	676.	d	724.	b
389.	d	437.	d	485.	b	533.	d	581.	d	629.	a	677.	d	725.	d
390.	d	438.	b	486.	c	534.	c	582.	b	630.	a	678.	e	726.	c
391.	b	439.	c	487.	a	535.	d	583.	d	631.	c	679.	d	727.	b
392.	a	440.	a	488.	b	536.	b	584.	a	632.	a	680.	d	728.	a
393.	b	441.	c	489.	d	537.	a	585.	b	633.	b	681.	c	729.	a
394.	c	442.	c	490.	d	538.	b	586.	a	634.	a	682.	b	730.	b
395.	c	443.	b	491.	d	539.	a	587.	d	635.	c	683.	b	731.	c
396.	d	444.	d	492.	c	540.	c	588.	b	636.	d	684.	c	732.	a
397.	c	445.	a	493.	a	541.	b	589.	b	637.	b	685.	b	733.	b
398.	c	446.	b	494.	d	542.	a	590.	d	638.	d	686.	c	734.	d
399.	d	447.	d	495.	b	543.	c	591.	c	639.	d	687.	a	735.	a
400.	d	448.	c	496.	d	544.	b	592.	b	640.	e	688.	c	736.	c
401.	a	449.	a	497.	d	545.	d	593.	a	641.	c	689.	d	737.	a
402.	a	450.	b	498.	c	546.	a	594.	a	642.	b	690.	b	738.	d
403.	d	451.	c	499.	c	547.	d	595.	a	643.	d	691.	c	739.	c
404.	b	452.	c	500.	a	548.	c	596.	c	644.	d	692.	d	740.	a
405.	c	453.	d	501.	d	549.	a	597.	c	645.	b	693.	b	741.	b
406.	b	454.	d	502.	d	550.	b	598.	c	646.	a	694.	a	742.	c
407.	a	455.	d	503.	d	551.	d	599.	b	647.	b	695.	d	743.	c
408.	a	456.	b	504.	b	552.	e	600.	b	648.	d	696.	a	744.	b
409.	a	457.	c	505.	d	553.	d	601.	a	649.	c	697.	c	745.	c
410.	b	458.	a	506.	c	554.	b	602.	a	650.	c	698.	d	746.	c
411.	b	459.	c	507.	d	555.	b	603.	c	651.	d	699.	d	747.	b
412.	d	460.	a	508.	b	556.	c	604.	a	652.	d	700.	c	748.	c
413.	d	461.	b	509.	c	557.	d	605.	d	653.	a	701.	d	749.	a
414.	b	462.	c	510.	c	558.	a	606.	d	654.	d	702.	a	750.	c
415.	c	463.	a	511.	d	559.	b	607.	d	655.	a	703.	b	751.	b
416.	d	464.	b	512.	b	560.	d	608.	d	656.	d	704.	c	752.	b
417.	d	465.	c	513.	d	561.	a	609.	c	657.	b	705.	d	753.	b
418.	d	466.	b	514.	b	562.	b	610.	c	658.	a	706.	c	754.	b
419.	a	467.	c	515.	d	563.	b	611.	b	659.	b	707.	d	755.	a
420.	a	468.	a	516.	d	564.	b	612.	b	660.	b	708.	a	756.	c
421.	b	469.	b	517.	c	565.	a	613.	c	661.	b	709.	c	757.	d
422.	a	470.	c	518.	a	566.	b	614.	a	662.	c	710.	b	758.	a
423.	a	471.	a	519.	c	567.	b	615.	b	663.	c	711.	d	759.	a
424.	d	472.	d	520.	a	568.	d	616.	a	664.	a	712.	b	760.	b
425.	c	473.	d	521.	c	569.	d	617.	b	665.	a	713.	d	761.	a
426.	d	474.	c	522.	c	570.	a	618.	c	666.	d	714.	a	762.	c
427.	a	475.	a	523.	d	571.	b	619.	d	667.	c	715.	a	763.	e
428.	c	476.	c	524.	a	572.	c	620.	a	668.	a	716.	c	764.	d
429.	b	477.	d	525.	d	573.	d	621.	c	669.	a	717.	b	765.	a
430.	c	478.	b	526.	d	574.	a	622.	d	670.	c	718.	b	766.	d
431.	a	479.	b	527.	c	575.	c	623.	d	671.	b	719.	c	767.	d

768.	c	816.	b	864.	b	912.	b	960.	a	1008.	b	1056.	a	1104.	a
769.	a	817.	d	865.	a	913.	c	961.	c	1009.	d	1057.	a	1105.	b
770.	a	818.	c	866.	a	914.	b	962.	b	1010.	d	1058.	d	1106.	a
771.	d	819.	d	867.	a	915.	b	963.	c	1011.	a	1059.	a	1107.	a
772.	a	820.	d	868.	a	916.	b	964.	b	1012.	c	1060.	c	1108.	c
773.	a	821.	d	869.	b	917.	b	965.	b	1013.	d	1061.	d	1109.	c
774.	d	822.	b	870.	d	918.	a	966.	a	1014.	c	1062.	c	1110.	a
775.	a	823.	c	871.	d	919.	d	967.	d	1015.	a	1063.	b	1111.	c
776.	b	824.	b	872.	d	920.	c	968.	c	1016.	d	1064.	d	1112.	d
777.	d	825.	c	873.	a	921.	b	969.	c	1017.	d	1065.	c	1113.	d
778.	c	826.	d	874.	d	922.	d	970.	c	1018.	a	1066.	b	1114.	a
779.	c	827.	c	875.	b	923.	b	971.	d	1019.	a	1067.	d	1115.	a
780.	d	828.	b	876.	a	924.	c	972.	a	1020.	c	1068.	a	1116.	a
781.	c	829.	b	877.	c	925.	c	973.	a	1021.	b	1069.	c	1117.	c
782.	a	830.	a	878.	b	926.	d	974.	b	1022.	d	1070.	a	1118.	d
783.	a	831.	c	879.	c	927.	d	975.	c	1023.	d	1071.	c	1119.	d
784.	b	832.	c	880.	a	928.	d	976.	b	1024.	d	1072.	a	1120.	d
785.	a	833.	d	881.	a	929.	d	977.	c	1025.	a	1073.	b	1121.	d
786.	d	834.	b	882.	a	930.	d	978.	b	1026.	a	1074.	b	1122.	d
787.	b	835.	c	883.	c	931.	a	979.	b	1027.	d	1075.	d	1123.	d
788.	c	836.	a	884.	a	932.	c	980.	a	1028.	d	1076.	d	1124.	a
789.	e	837.	b	885.	d	933.	d	981.	d	1029.	d	1077.	c	1125.	b
790.	d	838.	a	886.	a	934.	d	982.	c	1030.	a	1078.	c	1126.	a
791.	d	839.	a	887.	d	935.	a	983.	d	1031.	b	1079.	c	1127.	a
792.	d	840.	d	888.	d	936.	a	984.	b	1032.	a	1080.	c	1128.	c
793.	c	841.	c	889.	a	937.	a	985.	c	1033.	c	1081.	c	1129.	c
794.	b	842.	b	890.	d	938.	c	986.	a	1034.	a	1082.	d	1130.	d
795.	a	843.	d	891.	a	939.	d	987.	a	1035.	a	1083.	b	1131.	c
796.	c	844.	d	892.	d	940.	d	988.	c	1036.	d	1084.	b	1132.	d
797.	c	845.	b	893.	b	941.	d	989.	c	1037.	d	1085.	b	1133.	d
798.	a	846.	a	894.	c	942.	a	990.	d	1038.	d	1086.	d	1134.	d
799.	c	847.	b	895.	a	943.	d	991.	a	1039.	a	1087.	b	1135.	c
800.	c	848.	a	896.	c	944.	d	992.	d	1040.	b	1088.	a	1136.	d
801.	b	849.	d	897.	d	945.	a	993.	b	1041.	b	1089.	c	1137.	d
802.	c	850.	b	898.	b	946.	d	994.	c	1042.	b	1090.	c	1138.	a
803.	a	851.	a	899.	b	947.	a	995.	a	1043.	d	1091.	d	1139.	c
804.	d	852.	c	900.	d	948.	d	996.	a	1044.	d	1092.	c	1140.	d
805.	c	853.	c	901.	a	949.	b	997.	a	1045.	b	1093.	a	1141.	a
806.	c	854.	c	902.	b	950.	d	998.	b	1046.	c	1094.	a	1142.	a
807.	a	855.	d	903.	b	951.	d	999.	d	1047.	a	1095.	b	1143.	a
808.	c	856.	b	904.	a	952.	d	1000.	b	1048.	b	1096.	c	1144.	b
809.	d	857.	a	905.	d	953.	a	1001.	a	1049.	c	1097.	a	1145.	b
810.	a	858.	a	906.	b	954.	d	1002.	b	1050.	d	1098.	d	1146.	b
811.	a	859.	a	907.	c	955.	a	1003.	a	1051.	d	1099.	d	1147.	a
812.	c	860.	d	908.	d	956.	c	1004.	a	1052.	d	1100.	b	1148.	d
813.	d	861.	c	909.	d	957.	b	1005.	b	1053.	a	1101.	b	1149.	a
814.	b	862.	a	910.	d	958.	b	1006.	d	1054.	b	1102.	b	1150.	d
815.	d	863.	b	911.	a	959.	d	1007.	d	1055.	d	1103.	d	1151.	d

1152.	c	1200.	a	1248.	c	1296.	c	1344.	a	1392.	b	1440.	d	1488.	c
1153.	b	1201.	b	1249.	b	1297.	a	1345.	a	1393.	c	1441.	d	1489.	a
1154.	a	1202.	a	1250.	b	1298.	d	1346.	a	1394.	b	1442.	d	1490.	a
1155.	b	1203.	a	1251.	c	1299.	d	1347.	a	1395.	a	1443.	c	1491.	b
1156.	c	1204.	b	1252.	a	1300.	d	1348.	a	1396.	b	1444.	a	1492.	c
1157.	c	1205.	c	1253.	b	1301.	a	1349.	a	1397.	c	1445.	a	1493.	b
1158.	d	1206.	d	1254.	c	1302.	a	1350.	a	1398.	b	1446.	b	1494.	b
1159.	a	1207.	c	1255.	a	1303.	c	1351.	a	1399.	d	1447.	d	1495.	d
1160.	a	1208.	c	1256.	d	1304.	d	1352.	a	1400.	a	1448.	a	1496.	c
1161.	a	1209.	d	1257.	d	1305.	c	1353.	a	1401.	b	1449.	b	1497.	c
1162.	c	1210.	c	1258.	b	1306.	b	1354.	d	1402.	a	1450.	a	1498.	b
1163.	b	1211.	b	1259.	b	1307.	d	1355.	c	1403.	c	1451.	b	1499.	d
1164.	d	1212.	c	1260.	c	1308.	d	1356.	b	1404.	a	1452.	d	1500.	b
1165.	c	1213.	a	1261.	c	1309.	d	1357.	b	1405.	d	1453.	d	1501.	a
1166.	c	1214.	c	1262.	a	1310.	d	1358.	c	1406.	d	1454.	d	1502.	b
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1173.	b	1221.	c	1269.	c	1317.	b	1365.	b	1413.	b	1461.	c	1509.	a
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1175.	c	1223.	c	1271.	a	1319.	d	1367.	c	1415.	d	1463.	a	1511.	a
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1180.	d	1228.	b	1276.	b	1324.	c	1372.	a	1420.	c	1468.	c	1516.	c
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1184.	a	1232.	c	1280.	b	1328.	a	1376.	c	1424.	b	1472.	c	1520.	c
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1564.	a	1607.	c	1651.	b	1695.	d	1739.	e	1782.	a	1826.	b	1870.	b
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		1622.	d	1666.	c	1710.	a			1797.	b	1841.	c		



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