

- 1195 Out of the following system of distribution, which system offers the best economy?
- Direct Current System
 - A.C. Single phase system
 - AC 3-phase,3- wire system
 - AC 3 phase 4 wire system
- 1196 The main advantage of AC transmission system over DC transmission system is_____.
- Easy transformation
 - Les losses in transmission over long distances
 - Less insulation problem
 - Less problem or instability.
- 1197 The normal connected load of a domestic consumer is usually_____.
- up to 10 kW
 - 10 to 20 kW
 - 25 to 50 kW
 - 50 to 100 kW
- 1198 Load of an 1 ton air conditioner is normally_____.
- 100 W
 - 200 to 500 W
 - 1 kW to 2 kW
 - 5 kW to 10 kW
- 1199 The permissible voltage variation in voltage in distribution is_____.
- 3%
 - 1%
 - 10%
 - 5%
- 1200 Line voltage equal to phase voltage in_____.
- Star connection
 - Delta connection
 - Short circuit connection
 - Open circuit connection
- 1201 Halogen lamps are normally useful for the illumination of_____.
- Sport grounds
 - Parks
 - Airports
 - All of the above
- 1202 What is the equivalent resistance of two resistances of R ohm each connected in parallel?
- R
 - $2R$
 - $R/2$
 - Zero
- 1203 One kW equals to_____.
- 1 watt
 - 10 Watt
 - 1024 watt
 - 1000 watt
- 1204 A d.c. circuit usually has_____as the load.
- Resistance
 - Inductance
 - Capacitance
 - Inductance and Capacitance
- 1205 Two capacitor of capacitance 'C' are connected in series. What is the equivalent capacitance?
- C
 - $2C$
 - $C / 2$
 - 0
- 1206 The electrolyte in a lead acid battery is_____.
- AgNO_3
 - KOH
 - NaCl
 - H_2SO_4
- 1207 The power factor of an a.c. circuits given by_____.
- X_L/P
 - R/Z
 - R/X_L
 - Z/R
- 1208 Small dc machine has generally_____poles.
- 4
 - 2
 - 6
 - 8

- 1209 After connecting a capacitor in parallel to a single phase load, which quantity does not change?
- Reactive power drawn from the supply terminals
 - Active power drawn from the supply terminals
 - Current drawn from the supply terminals
 - Power factor of the supply terminals
- 1210 A transformer has 200 W as iron loss at full Toad. The iron losses at half of full load will be_____.
- 100 W
 - 50 W
 - 200 W.
 - 400 W
- 1211 The approximate efficiency of a large transformer is_____.
- 65%
 - 50%
 - 85%
 - 98%
- 1212 By laminating core we decrease_____.
- Leakage Reactance
 - hysteresis loss
 - Eddy current loss
 - Copper loss
- 1213 In an auto transformer, the primary and secondary are coupled_____.
- Only electrically
 - Magnetically as well as electrically
 - Only magnetically
 - none of the above
- 1214 Number of poles in a generator is 6. To generate voltage at 50 Hz, what should be the r.p.m. of the generator?
- 3000
 - 1500
 - 4500
 - 1000
- 1215 The voltage for single phase residential consumer is_____.
- 110V
 - 230V
 - 440V
 - 210V
- 1216 The power factor of industrial load is generally_____.
- Leading
 - lagging
 - unity
 - zero
- 1217 In ACSR conductor the insulation between aluminium strands and steel is_____.
- Bitumen
 - varnish
 - not required
 - either of the above
- 1218 Earth pit-resistance value is measured in which type of meter?
- Insulation tester
 - Earth tester
 - Voltmeter
 - Ammeter
- 1219 To avoid power factor penalty of industrial consumers, power factor should be kept_____.
- As less as possible
 - as high as possible
 - Power factor does not affect energy bill
 - as close to unity as possible
- 1220 In a three-phase system, when the loads are perfectly balanced, the neutral current is_____.
- one-third of maximum
 - zero
 - two-thirds of maximum
 - at maximum
- 1221 When the turn's ratio of a transformer is 1: 20 and the primary ac voltage is 12 V, the secondary voltage is_____.
- 24V
 - 120V
 - 240V
 - 20V

- 1222 What is the Secondary full load current of 2000/200V, 20KVA single phase transformer_____.
- 30 A
 - 100A
 - 50 A
 - 150A
- 1223 Resistances can be measured with the help of_____.
- wattmeter
 - voltmeters
 - ammeters
 - ohmmeters and resistance bridges
- 1224 Instrument which measures the insulation resistance of an electric circuit relative to earth and one another?
- Galvanometer
 - Ammeter
 - Megger
 - Current Transformer
- 1225 The brush of a motor is made of_____.
- copper
 - brass
 - carbon
 - silver
- 1226 The tube fluorescent lamp is filled with_____.
- Mercury and Nitrogen
 - Mercury and Argon
 - Oxygen and Argon
 - Nitrogen and Argon
- 1227 Which is the best conducting material?
- Silver
 - Mica
 - Aluminum
 - Porcelain
- 1228 Switch board is fixed at the height of_____.
- 0.25 meter
 - 0.5 meter
 - 1 meter
 - 1.50 meter
- 1229 Which instrument can be used to measure polarization index value for a transformer?
- Voltmeter
 - Ammeter
 - Megger
 - Turns Ratio Meter
- 1230 Function of choke in the fluorescent tube circuit is to_____.
- suppress the starting
 - reduce the frequency
 - reduce the flickering
 - initiate the arc and stabilize it
- 1231 Green colored cable indicate_____.
- Phase line
 - Neutral line
 - OK line
 - Earthing connection
- 1232 Two way switches are normally used for_____.
- Stair case wiring
 - conduit wiring
 - CTS wiring
 - none of these
- 1233 What will be total voltage, if 4 cells of 5V each are connected in series
- 5V
 - 3V
 - 6V
 - 0.375V
- 1234 Fleming Left Hand Rule, Thumb indicate_____.
- Current direction
 - field direction
 - Rotation of armature direction
 - none of the above
- 1235 The most common type of a.c. motor is the_____.
- single phase induction motor
 - two-phase induction motor
 - three-phase induction motor
 - two-phase squirrel-cage motor
- 1236 The minimum size of aluminum conductor for lighting circuit should be_____.

- a. 2.5 Sq.mm
b. 2 sq.mm
c. 1.5 sq.mm
d. 1 sq.mm
- 1237 The fuse is provided on the_____.
a. Neutral wire
b. Phase wire
c. Both phase & neutral wire
d. Earth wire
- 1238 In a lighting circuit, if a 5 Amp. Fuse blows frequently, it is required to_____.
a. insert fuse of higher capacity
b. check the load
c. Insert fuse of higher-voltage rating
- 1239 Buchholz relay is a_____.
a. Current sensitive device
b. Gas actuated device
c. Voltage sensitive device
d. both current & voltage sensitive
- 1240 In fault condition the MCB operates on_____.
a. Over voltage
b. output current
c. Under voltage
d. both (a) and (b)
- 1241 In sodium vapour lamp circuit, the choke acts as_____.
a. p.f. improvement device
b. Frequency limiting device
c. Voltage boosting device
d. Lux improvement
- 1242 Compared to 60 watt / 250 volt, a 60 watt / 230 volt bulb gives_____.
a. More light
b. less light
c. Equal light
d. none of the above
- 1243 The capacity of Air Conditioner is expressed in_____.
a. Kilowatt
b. Ton
c. square meter
d. KVA
- 1244 The length of G.I. pipe used in domestic earthing should be_____.
a. 6 feet
b. 10 feet
c. 20 feet
d. 15 feet
- 1245 The K.W., KVA and P.F. are expressed as_____.
a. $KVA * PF = KW$
b. $KW * PF = KVA$
c. $KVA/KW = PF$
d. $KVA * KW = PF$
- 1246 A lamp of 100 W at 200 V is supplied current at 100 volts. It's glow will be equivalent to the lamp of_____.
a. 10 W
b. 25 W
c. 40 W
d. 50 W
- 1247 Resistivity of a wire depends on_____.
a. Length
b. Material
c. Cross section area
d. All of the above.
- 1248 Low resistance can be accurately measured by_____.
a. Kelvin bridge
b. Wheat stone bridge
c. Wien's bridge
d. None of these
- 1249 Which of the following material is not used as fuse material?
a. Silver
b. Carbon
c. Aluminium
d. Copper
- 1250 Which of the following is not the same as watt?
a. joule/sec
b. amperes/volt
c. amperes x volts
d. $(\text{amperes})^2 \times \text{ohm}$.
- 1251 A mercury vapour lamp gives_____.

- a. pink light
b. yellow light
c. Greenish blue light
d. White light.
- 1252 Open circuit test on a transformer is conducted primarily to measure_____.
a. insulation resistance
b. copper loss
c. core loss
d. efficiency
- 1253 If a transformer is continuously operated the maximum temperature rise occur in_____.
a. Core
b. Windings
c. Tank
d. Any of the above
- 1254 The insulating material used between the commutator segments is normally_____.
a. Mica
b. Paper
c. Graphite
d. Insulating varnish
- 1255 Kirchhoff's second law is based on law of conservation of_____.
a. Charge
b. Energy
c. Momentum
d. Mass
- 1256 Which of the following loss in a transformer is zero even at full load?
a. core loss
b. friction loss
c. eddy current loss
d. hysteresis loss
- 1257 Which of the following motors is non self starting?
a. D.C. series motor
b. Synchronous motor
c. Squirrel cage induction motor
d. wound round induction motor
- 1258 The noise produced by a transformer is termed as_____.
a. Zoom
b. Hum
c. Ringing
d. Buzz
- 1259 Which of the following parts of transformer is visible from outside?
a. Bushing
b. Core
c. Primary winding
d. Secondary winding
- 1260 The motor used for the compressor is_____.
a. D.C. Series motor
b. shaded pole motor
c. capacitor start capacitor run motor
d. reluctance motor
- 1261 An ammeter has C.T. ratio -/5A and connected from the secondary of a CT of ratio 500 / 5 has the M.F. of the ammeter is_____.
a. 100
b. 1
c. 0.01
d. 20
- 1262 Supply of railway traction power is at_____voltage.
a. 132000
b. 440
c. 25000
d. 11000
- 1263 The transformer that does not provide electric Isolation is_____.
a. Power transformer
b. Auto transformer
c. Current transformer
d. Potential transformer
- 1264 In Induction heater, the principle of heating is_____heating.
a. Dielectric loss
b. Eddy current
c. Resistance current
d. Arc

- 1265 In case of loss of permit / certificate / license, duplicate can be issued, if applied for it within _____ of its expiry.
- One month
 - Six months
 - One year
 - Two years
- 1266 The SCCs cannot be renewed for more than _____ at a time.
- One year
 - Two yaars
 - 3 years
 - 5 years
- 1267 A building of height more than 15 meters, with supply voltage of _____ must be offered to an Electrical Inspector for inspection before charging of its electrical installation.
- 230 V
 - 400 V
 - 11000 V
 - 33000V
- 1268 When two electric lines cross each other, angle between those should be _____.
- 30°
 - 45°
 - 60°
 - 90°
- 1269 Lux is the unit of measurement for _____.
- illumination level
 - luminous flux
 - lamp efficiency
 - brightness
- 1270 Lumen output of a LED lamp is approximately _____ lumen per watt.
- 12
 - 30
 - 40
 - 100
- 1271 Aluminum tapes are used while binding overhead LT conductors to the insulators, because of it _____.
- gives better conductivity
 - protects from surge voltage
 - gives support against frictional damage
 - None of the above
- 1272 Shackle insulators are used in overhead lines of voltage up to _____.
- 11kV
 - 33kV
 - 650 V
 - 6kV
- 1273 The energy conservation day India is _____.
- 14th November
 - 14th December
 - 22nd April
 - 5th June
- 1274 For unauthorized use of electricity, a consumer can be provisionally accessed electricity charges under _____ of Electricity Act 2003
- Section 135
 - Section 126
 - Section 127
 - Section 138
- 1275 The VA rating of instrument transformer _____.
- is very large
 - is very low
 - is zero
 - depends on its input current
- 1276 Unit of measurement of P.I. value is _____.
- Ohms
 - Mho
 - Pure number
 - None Of the above
- 1277 The NABL accredited Laboratory for testing of energy meters (watt hour meter) In Odisha is _____.
- MRT Laboratory, BBSR of CESU

- b. MRT Laboratory, BURLA of WESCO
 c. STL BBSR under EIC (Electricity)
 d. MRT Laboratory, BALASORE of NESCO
- 1278 The resistance of a material of 2m long and 2m² in area of cross section is 6×10^{-8} ohms. Its specific resistance will be _____.
- a. $6 \times 10^{-8} \Omega \text{m}$
 b. $4 \times 10^{-4} \Omega \text{m}$
 c. $2 \times 10^{-8} \Omega \text{ms}$
 d. $0.16 \times 10^{-8} \Omega \text{ms}$
- 1279 Two transformers operating in parallel will share the load depending upon their _____.
- a. Ratings
 b. Leakage reactance
 c. Efficiency
 d. per unit impedance
- 1280 What voltage drop will be there across a 1KW electric heater, whose resistance when hot is 40 Ω ?
- a. 100V
 b. 50V
 c. 150V
 d. 200V
- 1281 Five cells each of e.m.f. E and internal resistance r are connected in series, if due to oversight, one cell is connected wrongly and then equipment e.m.f. and internal resistance of the combination are _____.
- a. $3E \& 5 \Omega$
 b. $5E \& 3 \Omega$
 c. $3E \& 5 \Omega$
 d. $3E \& 4 \Omega$
- 1282 One kilowatt-hour (kWh) is equal to _____.
- a. $36 \times 10^3 \text{ J}$
 b. 10^3 J
 c. $36 \times 10^5 \text{ J}$
 d. 10^5 J
- 1283 Electric supply is rated at 220V. In a house, 11 bulbs of power rating 100W each used. The rating of the fuse should be _____.
- a. 0.5A
 b. 0.1A
 c. 1A
 d. 5A
- 1284 A tap supply water at 220 C. A man takes 1 liter of water per minute at 37°C from the geyser. The power of the geyser is _____.
- a. 2100W
 b. 1575W
 c. 525W
 d. 1050W
- 1285 A 300 Kg PCC pole means:
- a. The weight of the pole is 300 Kg when dry
 b. The weight of the pole is 300 Kg when weight
 c. It can take maximum 300 Kg vertical load
 d. It can take maximum 300 Kg transverse load
- 1286 The resistance of an ideal ammeter is _____.
- a. Zero
 b. High
 c. Infinite
 d. 100 k Ω
- 1287 A voltmeter resistance 998 ohm is connected across a cell of e.m.f. 2 V and internal resistance 2 ohm. The readings of the voltmeter will be _____.
- a. 98V
 b. 96V
 c. 996V
 d. 998V
- 1288 When a transformer primary is fed from AC, its core heats up due to _____.
- a. Permeability of core
 b. Reluctance of core
 c. Ferromagnetism
 d. Hysteresis loss

- 1289 For the process of electrolysis, we require_____.
- DC supply only
 - AC supply
 - Either AC or DC does not matter
 - Both AC & DC supply
- 1290 The most commonly used cell in control rooms is _____.
- Lead-acid cell
 - Nickel-Iron cell
 - Nickel-Cadmium cell
 - Fuel Cell
- 1291 _____will work only on DC supply.
- Electric lamp
 - Refrigerator
 - Heater
 - Electroplating
- 1292 An electric bulb rated at 220V, 50Hz Is connected to 220V, 5Hz AC source then the bulb _____.
- does not glow
 - fuses
 - glows continuously
 - glows intermittently
- 1293 A 3 phase load is said to be balanced, if all the 3-phases have the same_____.
- Impedance
 - Power factor
 - Impedance & power factor
 - None of the above
- 1294 A water source has average discharge of Qm^3/sec , head H meters, density of water w kg/m if gravity g m/sec² and combines efficiency of turbine and generator to be 'η', the power available for generation is_____.
- $wQHg \eta / 75 \text{ kW}$
 - $wQHg \eta / 10^{-3}kW$
 - $wQHg \text{ kW}$
 - $wQHg \eta \text{ kW}$
- 1295 The best location of p.f. connection equipment to be installed on
- transmission line is at the_____.
- Sending end
 - Receiving end
 - Middle of line
 - None of the above
- 1296 A string of suspension insulators has 3 discs. If the disc nearest to the conductor flash over (i.e. breaks down). then
- The remaining discs will flash over
 - The remaining discs will remain intact
 - Only the top disc will flash over
 - None of the above
- 1297 If span length is doubled with no change in other factors, then sag of the line will become_____.
- 0.5 times
 - 2 times
 - 4 times
 - 8 times
- 1298 In a circuit breaker, rating is 1500A, 1000MVA, 33KV, 3 seconds, 3-phase. Then the MVA capacity is for_____.
- Making capacity
 - Breaking capacity
 - Both making & breaking capacity
 - None of the above
- 1299 Differential protection in principle Is employed for_____.
- Protection of alternators
 - Protection of transformers
 - Bus-zone protection
 - All of the above
- 1300 The impedance relaying scheme Is used for the protection of _____.
- Transmission lines
 - Alternators
 - Bus bars
 - Transformers
- 1301 Full load slip of a synchronous motor is_____.
- 5%

- b. 1%
c. 2%
d. Zero
- 1302 The E.M.F. Induced In _____ is a statically induced E.M.F..
a. DC generator
b. DC motor
c. Transformer
d. None of the above
- 1303 The full load copper loss and iron loss of a transformer are 6400 W and 5000 W respectively. The copper loss and iron loss at half load will be _____ and _____ respectively.
a. 3200W and 2500W
b. 3200 W and 5200 W
c. 1600 W and 1250 W
d. 1600 W and 5000 W
- 1304 A 250 KVA, 11000 V/ 400 V and 50 Hz single phase transformer has 80 turns on the secondary, what is the maximum value of flux?
a. 2475 mWb
b. 0.2 mWb
c. 25 mWb
d. 52 mWb
- 1305 For a current up to 10A which material is used as the fusing element?
a. Copper
b. Silver
c. Alloy of lead and tin
d. Zinc
- 1306 A distribution transformer usually is a _____.
a. Star-star transformers
b. Delta-delta transformer
c. Star-delta transformer
d. Delta-star transformer
- 1307 The breakdown stress of atmospheric air is _____.
a. 0.3 kV/cm
b. 3 kV/cm
c. 30 kV/ cm
d. 300 kV/cm
- 1308 If the fault current is 200 amps, the relay setting 50 % and the C.T. ratio is 400/5, then the plug setting multiplier will be _____.
a. 5
b. 7
c. 8
d. 10
- 1309 A 3-phase breaker is rated at 2000 MVA, 33 kV; its making current will be _____.
a. 35 kA
b. 49 kA
c. 70 kA
d. 89 kA
- 1310 The order of the Lightning discharge current is _____.
a. 10,000 amp
b. 100 amp
c. 1 amp
d. 1 microampere
- 1311 Internal faults of transformer are detected and protected by _____.
a. Buchholz relay
b. Directional relay
c. Thermal relay
d. Distance relay
- 1312 An Isolator operates under _____.
a. Fault condition
b. No load condition
c. Full load condition
d. 50 % load condition
- 1313 The lightning arrester is usually connected _____.
a. In series with the line
b. Between line and earth
c. Both (a) and (b)
d. Neither (a) nor (b)
- 1314 Authorization of chartered Electric safety Engineer to assist the owner of supplier or consumer of electric installations for the purpose of self-certification under regulation 30 and regulation 43 is in accordance with CEA (Measures relating to

- safety and Electric Supply), regulation, 2010.
- a. Regulation 5A
b. Regulation 8
c. Regulation 16
d. Regulation 28
- 1315 The minimum clearance above ground of the lowest conductor of overhead lines of voltage 33 kV erected above the agricultural land shall be _____ meters as per CEA (Measures relating to safety and Electric Supply), regulation, 2010.
- a. 5.2
b. 5.8
c. 5.5
d. 4.6
- 1316 As per CEA (Technical standards for connectivity to Grid) Regulations, 2007; the voltage unbalance at 33 kV and above shall not exceed _____.
- a. 3%
b. 8%
c. 5%
d. 4%
- 1317 An 11kV overhead line passes adjacent to building having open balcony. The horizontal safety clearance for the overhead line from the balcony wall be at least _____ meters as per CEA (Measures relating to safety and Electric Supply), regulation, 2010
- a. 1.2
b. 4.6
c. 2.5
d. 3.7
- 1318 An 11kV overhead line passes over a building having flat roof. The vertical safety clearance above highest part of building immediately under the line shall be at least _____ meters as per CEA (Measures relating to safety and Electric Supply), regulation, 2010
- a. 3.7
b. 4.6
c. 2.5
d. 1.2
- 1319 An 11kV overhead line crosses a medium voltage overhead line. The minimum clearance between these line shall be at least _____ meters as per CEA (Measures relating to safety and Electric Supply), regulation, 2010
- a. 2.44
b. 3.5
c. 4.58
d. 3.05
- 1320 In general, the surge arresters are made up of _____.
- a. ZnO
b. Zn
c. Pd
d. Zr
- 1321 The phase current of a delta-connected, 3-phase circuits 100 amps. The lines current will be _____.
- a. 58 amps
b. 100 amps
c. 173 amps
d. 300 amps.
- 1322 The voltage across any branch of parallel circuits is _____.
- a. Determined by the resistance of the branch
b. Equal to the supply voltage
c. Determined by sum of number of loads
d. Determined by product of number of loads
- 1323 An electrical circuit that has infinity resistance is called as _____ circuit.
- a. An open
b. A short
c. A ground
d. Either (a) or (b)

- 1324 If the diameter of a metal wire of a given length is halved, its resistance will be_____.
- four times
 - halved
 - the same as before
 - $(1/4)^{\text{th}}$ time.
- 1325 How much is the nominal output voltage of a Lead- Acid cell?
- 2 V
 - 5 V
 - 3.0 V
 - 2.2 V
- 1326 The maximum permissible Watts In a heating sub circuit as per ISI code is_____.
- 100 watts
 - 800 watts
 - 1 kW
 - 5 kW
- 1327 Two 120V light bulbs are connected in series across a 240 V line. Light bulb L_1 is 60 watts and L_2 is 100 watts. How will the bulbs glow?
- Both L_1 and L_2 will glow with equal brightness
 - Bulb L_2 will glow brighter than bulb L_1
 - Bulb L_1 will glow brighter than bulb L_2
 - Both bulbs will not glow
- 1328 AC magnets are made of laminated iron_____.
- For better induction
 - To reduce the heating effect
 - For AC and DC Use
 - To prevent chattering
- 1329 DGA test of transformer oil is a diagnostic test which Indicates the_____.
- Condition of the transformer oil
 - Healthiness of transformer winding and insulation
 - Healthiness of transformer external parts
 - None of this
- 1330 The earth tester uses_____.
- AC
 - DC
 - AC or DC
 - None of these
- 1331 Transformer oil used In transformer provides_____.
- Insulating and cooling
 - Cooling and lubrication
 - Lubrication and Insulation
 - Insulation, cooling end lubrication
- 1332 A tap changer is used on a transformer for_____.
- Adjustments in primary voltage
 - Adjustments in secondary voltage
 - Adjustments in both primary and secondary voltages
 - Adjustment in power factor
- 1333 Polarization Index is the ratio of insulation resistance measured values of duration_____.
- R_{60S}/R_{60S}
 - R_{60S}/R_{15S}
 - R_{100S} / R_{10S}
 - None of the this
- 1334 The efficiency of transformer compared with that of electric motors of the same rating is_____.
- About the same
 - Much smaller
 - Slightly higher
 - Much higher
- 1335 The minimum dielectric strength BDV of transformer oil required for a 33 /11kV is_____.
- 60 kV
 - 50 kV
 - 40 kV
 - 30 kV
- 1336 For conventional power plants, running cost is maximum for_____.
- Thermal plant
 - Hydro plant
 - Diesel plant
 - None of this

- 1337 Photo-voltaic cell produces electric energy from_____.
- Electromagnetic energy
 - Electrostatic energy
 - Geothermal energy
 - Both (a) and (b) above
- 1338 _____Meter will be most sensitive.
- 50 mA
 - 100 μ A
 - 50 μ A
 - 1 μ A
- 1339 In thermal power station the largest capacity pumps is_____.
- Cooling water pump
 - Boiler feed pump
 - Condensate extraction pump
 - None of this
- 1340 Load factor is defined as_____.
- Maximum demand / Average demand
 - Average demand / Maximum demand
 - Maximum demand / Peak load
 - Maximum demand / Minimum demand
- 1341 An AC circuit has a 100 ohms R, a 100 Ohms XL 100 ohms XC all In series. The Impedance Z of the series combination is equal to_____.
- 333 ohms
 - 70 ohms
 - 100 ohms
 - 300 ohms
- 1342 Guy is fastened to a pole to_____.
- strengthen the pole
 - hold telephone cable
 - keep the wires from sagging
 - None of these
- 1343 Sag template is required for finding_____.
- The position and height of the supports on the profile
 - Tension In the conductor
 - Calculate sag of the span
 - None of this
- 1344 If the power factor of a circuit is unity, its active power is_____.
- Zero
 - Unity
 - Maximum
 - Minimum
- 1345 The conductor carries current on the surface in comparison to its core. The phenomenon is called the_____.
- Skin effect
 - Corona
 - Ferranti effect
 - Lenz's effect
- 1346 In 3-phase power measurement by two wattmeter method, when both watt meters read same value. The power factor is_____.
- Unity
 - 0.5 to unity
 - 0.5
 - Below 0.5
- 1347 If the supply voltage 'V' is 10 Volts across the coil and a resisted connected in series, when voltage across the inductive coil 'VL' is volts, the amount of voltage read by the voltmeter across the register 'VR' is _____.
- 2 volts
 - 6 volts
 - 10 volts
 - 1 volts
- 1348 If the supply frequency changes from 50 Hz. to 100 Hz. Keeping voltages constant, the Inductive reactance of coil connected to supply_____.
- remains same
 - become half
 - become doubled
 - become 4 times

- 1349 Lightning arrestors are provided in sub-station at_____.
- Line incoming and line out going points
 - Near to circuit breakers
 - Near to CTs
 - None of these
- 1350 Safe value of current carrying capacity of cables is determined by_____.
- maximum voltage
 - maximum temperature
 - power factor
 - maximum pressure
- 1351 The power factor of an induction motor operating at no load will have value around_____.
- 0.9 lag
 - 0.2 lead
 - 0.2 lag
 - 0.9 lead
- 1352 The body resistant value of a person with normal age and health is about_____.
- 1000 ohm
 - 10 kilo ohm
 - 5 kilo ohm
 - 0.5 kilo ohm
- 1353 Fleming's right hand rule is applicable for_____.
- Generators
 - Motors
 - Both generators and motors
 - None of these
- 1354 AAAC stands for_____.
- All Aluminium alloy conductor
 - All Aluminium conductor
 - Alloy Aluminium conductor
 - None of this
- 1355 When five resistors are connected in parallel of values 10 K ohms, 100 K ohms, 1 K ohm, 10 ohm and 0.1 ohm, the equivalent resistance value will be always less than_____.
- 10 ohm
 - 100 K ohms
 - 1 K ohm
 - 0.1 ohm
- 1356 Fusing factor value is always_____.
- less than one
 - more than one
 - more than two
 - none of these
- 1357 Voltage regulation of a transformer is the
- voltage drop from no load to full load
 - current rise from no load to full load
 - power loss from no load to full load
 - none of these
- 1358 How to get (-) volt from a battery?
- By connecting the (-)ve terminal of the battery to earth
 - By connecting (+)ve terminal of the battery to earth
 - By reverse connecting two batteries
 - none of these
- 1359 In a Hydro-station surge tank is provided near to the
- Turbine
 - Tailrace
 - Reservoir
 - None of these
- 1360 By adding more resistance to R-L circuit, the_____.
- True power increases
 - Power factor decreases
 - Angle of phase difference decreases
 - None of these
- 1361 The auxiliary electrodes (temporary electrodes) to measure the earth resistances of an earth electrode are to be placed at_____distance from electrode under test respectively.
- 15 & 30 mtr.
 - 15 & 20 mtr.
 - 15 & 60 mtr
 - 2 & 4 mtr.

- 1362 Minimum value of current above which it passes through human body can cause danger is _____.
 a. 1A
 b. 5 mA
 c. 30 mA
 d. 20 μ A
- 1363 The fuse wire rating should be decided taking _____ times of continuous current calculated to flow.
 a. 1
 b. 1.5
 c. 4
 d. 10
- 1364 In house wiring the switches are used to control the _____.
 a. Phase
 b. Neutral
 c. Earthing
 d. Both Phase & Neutral
- 1365 Incandescent, LED, Florescent lamps have their lumen output per watt in the descending order of _____.
 a. Fluorescent, LED, Incandescent
 b. Incandescent, Fluorescent, LED
 c. LED, Fluorescent, Incandescent
 d. Incandescent. LED, Fluorescent
- 1366 Specific resistance of a wire depends upon _____.
 a. It's length
 b. It's cross sectional area
 c. It's dimension
 d. It's material
- 1367 Auto transformer efficiency is _____ than a two winding transformer of same capacity & voltage ratio.
 a. Less
 b. Equal
 c. More
 d. Data is insufficient
- 1368 Three capacitor of value 2F, 3F and 5F are connected In parallel across a 230V AC supply, their combined affective capacitance will be _____.
 a. 0.98F
 b. 10F
 c. 5F
 d. 30F
- 1369 Service connection to a consumer is generally given not exceeding _____ meters from the distribution mains.
 a. 75
 b. 30
 c. 50
 d. 100
- 1370 The supply frequency to a consumer should be within _____.
 a. (+ / -) 1%
 b. (+ / -) 2%
 c. (+ / -) 3%
 d. (+ / -) 5%
- 1371 Due to leakage flux the stray loss occurs _____.
 a. Secondary winding
 b. Transformer tank
 c. Primary winding
 d. All of the above
- 1372 Halon is used as extinguisher for _____.
 a. Electrical fire
 b. Petroleum product
 c. Delicate electronic equipment (like computer) fire
 d. All of the above
- 1373 To reduce the value of earth resistance of an electrode we should not _____.
 a. Put salt water to the electrode
 b. Put borrowed earth to the pit
 c. Increase the diameter of the electrode
 d. Put the electrode in a very water logged soil
- 1374 Which of the following type of power stations can be used as base load stations
 a. Pumped Storage stations

- b. Diesel Generator Substations
 c. Purely run off the river hydro stations
 d. Hydro station with limited reservoir capacity
- 1375 In 3-pin socket with one phase supply the phase is kept on the_____.
 a. Left side
 b. Right side
 c. On the top
 d. In any of the above
- 1376 The losses that occurs in cables are_____.
 a. Copper losses in conductors
 b. Hysteresis loas in dielectric
 c. Eddy current losses In the sheath
 d. All of the above
- 1377 Lamp efficiency is the ratio of_____.
 a. Luminous flux to power input
 b. Power input to Luminous intensity
 c. Illumination under normal working condition to illumination when everything is perfectly clean
 d. Total lumens reaching the working plane to total lumens given out by the lamp
- 1378 Dielectric heating is possible for heating_____.
 a. Insulating material
 b. Magnetic material
 c. Metallic material
 d. Any of the above
- 1379 Sterilization of bandages, absorbent cotton, and sterilized gauge are done by_____.
 a. ARC heating
 b. Induction heating
 c. Di-electric heating
 d. Resistance heating
- 1380 When a squirrel cage Induction motor runs at_____of synchronous speed, it is called to be crawling
 a. Half
- b. $\frac{2}{3}^{\text{rd}}$
 c. $\frac{1}{3}^{\text{rd}}$
 d. $\frac{1}{7}^{\text{th}}$
- 1381 The domestic fan motors are single phase_____.
 a. Repulsion motors
 b. Series motors
 c. Capacitor start only motors
 d. Permanent capacitor start & run motors
- 1382 Capacitor opposes_____.
 a. Change of current
 b. Change in voltage
 c. Both change In voltage and current
 d. None of the above
- 1383 Two capacitors of capacitance $3\mu\text{F}$ & $6\mu\text{F}$ in series will have a total capacitance of_____.
 a. $9\mu\text{F}$
 b. $2\mu\text{F}$
 c. $18\mu\text{F}$
 d. $24\mu\text{F}$
- 1384 If the specific gravity of electrolyte (H_2SO_4) In a lead acid cell Increases, the internal resistance of the cell_____.
 a. remains unchanged
 b. is Increased
 c. is deceased
 d. None of the above
- 1385 The capacity of a storage battery is rated in_____.
 a. Ampere
 b. Ampere hours
 c. kW
 d. Joules
- 1386 An alternating current is converted to direct current by_____.
 a. Dynamo
 b. Transformer
 c. Rectifier
 d. Motor
- 1387 An electric bulb at 220V, 50Hz AC is connected to a 220V, 5Hz AC source, then the bulb_____.

- a. Does not glow
b. Fuses
c. Glows continuously
d. Glows Intermikently
- 1388 A watt meter indicates_____ power.
a. Active
b. Reactive
c. Apparent
d. None of the above
- 1389 The advantage of star connected supply system is that_____.
a. Line current is equal to phase current
b. Two levels of voltages can be used
c. Phase sequence can be easily changed
d. it is a simple arrangement
- 1390 The meter constant of an energy meter is 1500 Rev/ KWh. The disc makes 3000 revolutions in a given time. The energy consumed is_____.
a. 4KWh
b. 1KWh
c. 3KWh
d. 2KWh
- 1391 The directions of split phase Induction motor can be reversed by inter changing the connections of supply of_____.
a. Either main or starting winding
b. Both main and starting winding
c. Rotor winding
d. None of the above
- 1392 The stator of an alternator is wound for_____on be rotor.
a. more no. of poles than
b. less no. of poles than
c. the same no. of poles as
d. None of the above
- 1393 In a synchronous generator, if ϕ is this flux per pole. and f is the frequency of the e.m.f. induced then_____.
a. E is inversely proportional to $f\phi$
b. E is proportional to $f.\phi$
c. E is proportional to ϕ / f
d. E is proportional to f / ϕ
- 1394 Which one of the following can be called as Integrating Instrument?
a. Voltmeter
b. Wattmeter
c. Power factor meter
d. Energy meter
- 1395 For low head and large discharge, the hydraulic turbine used is_____.
a. Francis turbine
b. Kaplan turbine
c. Pelton turbine
d. None of the above
- 1396 Which of the following plants will take the least time in starting from cold conditions to full load conditions?
a. Nuclear power plant
b. Hydroelectric plant
c. Steam power plant
d. Gas turbine plant
- 1397 In overhead transmission line, the sag depends upon_____.
a. Tension in the conductor
b. Conductor material
c. Span of conductor
d. All of the above
- 1398 On an overhead line, the wind load acts_____.
a. Horizontally
b. Vertically downward
c. Vertically upward
d. None of the above
- 1399 In a string of suspension insulators, voltage across_____.
a. Disc nearest to cross arm is minimum
b. Middle disc is maximum
c. Disc nearest to conductor is maximum
d. Disc nearest to cross arm is maximum

- 1400 Insulators may fail due to_____.
- Flash over
 - Short circuits
 - Deposition of dust
 - Any of the above
- 1401 ACSR conductors having 70 aluminum conductors and 6 steel conductors may be specified as_____.
- (70/6)
 - (6/70)
 - (70/76)
 - (8/76)
- 1402 The loads on 3-phase, 4-wire distribution are usually_____.
- Balanced
 - Un-balanced
 - Either (a) or (b)
 - None of the above
- 1403 Which portion of the power system is least prone to faults?
- Switchgear
 - Transformers
 - Alternators
 - Overhead lines
- 1404 An isolator is designed to operate on circuit under_____.
- full load
 - normal conditions
 - no load
 - none of the above
- 1405 The most dangerous fault in an alternator is_____.
- Failure of field
 - Stator winding faults
 - Failure of prime mover
 - Un-balanced loading
- 1406 Guard wires are placed _____the line conductors.
- below
 - above
 - in middle of
 - None of the above
- 1407 Differential relays are used to protect the equipment against _____.
- Over current
 - Reverse current
 - Internal faults
 - None of these
- 1408 A surge diverter should be located_____the apparatus to be protected.
- Close to
 - Far away from
 - In the middle of
 - None of the above
- 1409 Under voltage relays are mostly used for _____.
- Transformer protection
 - Bus bar protection
 - Motor protection
 - Feeder protection
- 1410 A single phase transformer when supplied from 220 V, 50 Hz has eddy current loss of 50 W, If the transformer is connected to a voltage of 330 V, 50 Hz, the eddy current loss will be_____.
- 1675W
 - 115 W
 - 75 W
 - 50 W
- 1411 What is the load at which maximum efficiency occurs In case of a 100 kVA transformer with iron loss of 1 kW and full-load copper loss of 2 kW?
- 100 kVA
 - 70.7 kVA
 - 50.5 kVA
 - 22 kVA
- 1412 In an auto- transformer, power is transferred through_____.
- Conduction process only
 - Induction process only
 - Both conduction and Induction process
 - Mutual coupling

- 1413 Sludge formation in transformer oil is due to which one of the following?
- Ingress of dust particles and moisture in the oil
 - Appearance of small fragments of paper varnish, cotton and other organic materials in the oil
 - Chemical reaction of transformer oil with the insulating materials
 - Oxidation of transformer oil
- 1414 Which one of the following statements is correct in an induction motor, if the air gap is increased,
- Its speed will reduce
 - Its efficiency will improve
 - Its power factor will reduce
 - Its breakdown torque will reduce
- 1415 What is switchgear?
- An apparatus used for switching, controlling and protecting the electrical circuits and equipments.
 - It detects the faults only.
 - It corrects the faults only.
 - All of the above.
- 1416 Which device sends the information to the circuit breaker to interrupt the circuit in case of fault?
- Switch
 - Relay
 - Circuit breaker itself does this function
 - Fuse
- 1417 In a HRC fuse what is the time between the cut of end the final current zero called?
- Pre - arcing time.
 - Arcing time.
 - Total operating time.
 - None of these.
- 1418 Earth tester operates on_____.
- AC only
 - DC only
 - Both (a) and (b)
 - None of these
- 1419 The effect of electric shock in the human body is dependent on_____.
- Line voltage
 - Line current
 - Current flowing in the body
 - None of the above
- 1420 Siemens is unit for measuring_____.
- Conductance
 - Resistance
 - Flux density
 - Electric field
- 1421 The practical unit of energy is kWh. The unit of energy in the SI is the Joule. The number of joules in kWh is_____.
- 6
 - 6×10^6
 - 6×10^{-6}
 - 10^6
- 1422 The most common generation voltage in India is_____.
- 110 kV
 - 11 kV
 - 1 kV
 - 66 kV
- 1423 The transformer that will have the largest size is_____.
- 100 kVA, 25 Hz
 - 100 kVA, 100 Hz
 - 100 kVA, 50 Hz
 - 100 kVA, 60 Hz
- 1424 There are two transformers of regulation (1) 5 %, (2) 95%. The one with better regulation is_____.
- Second
 - Both are same
 - First
 - Depends on loading
- 1425 An Induction motor when started on load does not accelerate up to full speed but runs at $1/7^{\text{th}}$ of the rated speed. The motor is said to be_____.
- locking
 - plugging

- c. crawling
d. cogging
- 1426 The owner of every installation of Voltage exceeding 250V shall affix permanently Danger Notice in a conspicuous Location in accordance with CEA (Measures relating to safety and Electric Supply), regulation, 2010
- a. Regulation 18
b. Regulation 11
c. Regulation 28
d. Regulation 49
- 1427 In accordance with CEA (Measures relating to safety and Electric Supply), regulation, 2010; the supplier or owner of Installation shall provide a suitable isolating device at the point of commencement of supply, fixed at height not more than _____ meters above the ground for multi-storied building more than 15 meters in height.
- a. 1.7
b. 2
c. 3
d. 3.5
- 1428 While providing the ELCB to electrical installation as per the provision under CEA (Measures relating to Safety and Electric Supply), regulation, 2010; the maximum earth leakage threshold limit for tapping In case of domestic connections and for other Installations should be _____ mA and _____ mA respectively.
- a. 30 and 100
b. 50 and 70
c. 5 and 10
d. 50 and 100
- 1429 The stay insulator in the stay wire shall be at height of at least _____ meters from the ground as per CEA (Measures relating to safety and Electric Supply), regulation, 2010.
- a. 3
b. 5
c. 5
d. 2
- 1430 The cross-sectional area of the earthing conductor In mines shall not be more than _____ sq. cm. as per as per CEA (Measures relating to safety and Electric Supply), regulation, 2010.
- a. 0.15
b. 0.25
c. 0.4
d. Neither of any one
- 1431 The dielectric strength of air under normal conditions is around _____.
- a. 30 kV/cm.
b. 100 kV/cm
c. 150 kV/cm
d. 200 kV/cm
- 1432 If the diameter of a metal wire of a given length is doubled, its resistance will _____.
- a. Be doubled
b. Be halved
c. Remain the same
d. Be 1/4 th time
- 1433 In Fleming's left hand rule, the thumb always represents direction of _____.
- a. Current flow
b. Induced e.m.f.
c. Magnetic field
d. Mechanical force
- 1434 When an electric current is passed through a bucket full of water, lot of bubbling is there. The current _____.
- a. AC
b. DC
c. Pulsating
d. None of these.

- 1435 A tap changer is used on a transformer for
- Adjustments in primary voltage
 - Adjustments in secondary voltage
 - Adjustments In both primary and secondary voltages
 - Adjustment In power factor
- 1436 The noise In a transformer due to vibration of laminations set by magnetic forces is called_____.
- Flicker noise
 - Humming nose
 - Transit time noise
 - Agitation noise
- 1437 The efficiency of transformer _____compared motors
- About the same
 - Much smaller
 - Slightly higher
 - Much higher
- 1438 A transformer is provided with three independent secondary winding of 6V -1A, 24V-1A, 240 V- 0.5A. The rating of transformer shall be_____.
- 6 VA
 - 24 VA
 - 120 VA
 - 150 VA
- 1439 Which part of the transformer is subjected to maximum heating?
- Core
 - Winding
 - Oil
 - Frame
- 1440 Photo-voltaic cell produces electric energy from_____.
- Electromagnetic energy
 - Electrostatic energy
 - Geothermal energy
 - Both (a) and (b)
- 1441 Wind energy_____.
- is clean, renewable energy
 - has higher cost
 - develops power proportional to the power of the wind
 - all of these
- 1442 Load factor Is defined as_____.
- Maximum demand / Average demand
 - Average demand / Maximum demand
 - Maximum demand / Peak load
 - Maximum demand / Minimum demand
- 1443 Concrete poles are used because of their
- Longer life
 - Less maintenance cost
 - Both (a) and (b)
 - None of these
- 1444 Guy is fastened to a pole to_____.
- Strengthen the pole
 - Hold telephone cables
 - Keep the wires from sagging
 - None of these
- 1445 One Pico farad is equal to_____.
- 10^{-2} farad
 - 10^{-6} farad
 - 10^{-9} farad
 - 10^{-12} farad
- 1446 Megger is used for the measurement of_____.
- low resistance
 - medium resistance
 - high resistance
 - very high resistance
- 1447 The reactive power can be calculated by using the formula_____.
- kVA x Cos ϕ
 - kW x Cos ϕ
 - kW x Sin ϕ
 - kVA x Sin ϕ
- 1448 Safe value of current carrying capacity of cable is determined by_____.
- Maximum voltage
 - Maximum temperature
 - Power factor
 - Maximum pressure

- 1449 The holes on the aluminium disc in an energy meter help to_____.
- Prevent creeping
 - Reduce the resistance
 - Reduce the friction
 - Reduce the weight of the disc
- 1450 The body resistance value of a person with normal age and health is about_____.
- 1 kilo ohm
 - 10 kilo ohm
 - 5 kilo ohms
 - 0.5 kilo ohm
- 1451 Maximum interval between supports for overhead Line of voltage not exceeding 650V as per the CEA Regulations is_____.
- 72 mtr
 - 50 mtr
 - 65 mtr
 - 100 mtr.
- 1452 Which of the following motor is mostly used for driving a refrigerator?
- A universal motor
 - A capacitor start induction motor
 - A D.C. shunt motor
 - A plain squirrel cage induction motor
- 1453 For protection of persons from the risk of electrocution in domestic wiring system, a device is provided named_____.
- MCB
 - MCCB
 - FUSE unit
 - ELCB
- 1454 ACSR stands for_____.
- All Aluminum Alloy conductor
 - Aluminum conductor steel reinforced
 - Alloy conductor with steal
 - None of these
- 1455 The maximum permissible load in lighting sub-circuit is_____.
- 800W
 - 850W
 - 875W
 - 880W
- 1456 When the overhead LT line passes adjacent to the building the horizontal clearance must be
- Not less than 1.0 Metres
 - Not less than 1.2 Metres
 - Not less than 6 Metres
 - None of these
- 1457 The inner tube of high pressure MV lamp has_____.
- Argon gas
 - Halogen gas
 - Helium gas
 - Nitrogen gas
- 1458 A tube lamp circuit meant for 220V, 50Hz AC supply Is connected to 220V DC supply. What is the consequence?
- The tube lamp glows normally
 - The tube lamp becomes brighter
 - The tube lamp becomes less bright
 - The tube lamp Initially starts and then the tube bums out
- 1459 According to National Electric Code, what should be the minimum acceptable value of the insulation resistance for domestic installation?
- Not less than 0.1 M Ω
 - Not less than 0.5 M Ω
 - Not less than 0.25 M Ω
 - Not less than 1 M Ω
- 1460 Instrument transformers are load on AC circuits for extending the range of_____.
- Ammeters only
 - Voltmeters only
 - Wattmeter's only
 - All of the above
- 1461 Find the equivalent resistance of four 80 Ω resistors in parallel and one 5 Ω resistor in parallel combination:
- 15 Ω
 - 20 Ω

- c. 25 Ω
d. 30 Ω
- 1462 In a circuit a 33 Ω Resistor carries a current of 2A. The voltage across the resistor is_____.
- a. 33 V
b. 66 V.
c. 80 V
d. 132 V
- 1463 A light bulb draws 300 mA when the voltage across it is 240 V. The resistance of the light bulb is_____.
- a. 400 Ω
b. 600 Ω
c. 800 Ω
d. 1000 Ω
- 1464 The resistance of a parallel circuit consisting of two branches is 12 ohms. If the resistance of one branch is 18 ohms, what is the resistance of the other?
- a. 18 Ω
b. 36 Ω
c. 48 Ω
d. 64 Ω
- 1465 Four wires of same material, the same cross-sectional area and the same length when connected in parallel give a resistance of 0.25 Ω . If the same four wires are connected in series the effective resistance will be_____.
- a. 1 Ω
b. 2 Ω
c. 3 Ω
d. 4 Ω
- 1466 A current of 16 amperes divides between two branches in parallel of resistances 8 ohms and 12 ohms respectively. The current in each branch is_____and _____respectively
- a. 6.4 A, 6.9 A
b. 6.4 A, 9.6 A
c. 4.6 A, 6.9 A
d. 4.6 A, 9.6 A
- 1467 Current velocity through a copper conductor is_____.
- a. the same as propagation velocity of electric energy
b. independent of current strength
c. of the order of a few $\mu\text{s/m}$
d. nearly 3×10^8 m/s
- 1468 Which of the following materials has a nearly zero temperature coefficient of resistance?
- a. Manganin
b. Porcelain
c. Carbon
d. Copper
- 1469 You have to replace 1500 Ω resistance in radio. You have no 1500 Ω resistor but have several 1000 Ω ones which you would connect_____.
- a. two in parallel
b. two in parallel and one in series
c. three in parallel
d. three in series
- 1470 Two resistors are said to be connected in series when_____.
- a. same current passes in turn through both
b. both carry the same value of current
c. Total current equals the sum of branch currents
d. sum of IR drops equals the applied e.m.f.
- 1471 Which of the following statement is true both for a series and a parallel circuit?
- a. Elements have individual currents
b. Currents are additive
c. Voltages are additive
d. Power are additive
- 1472 Whatever the battery voltage in it is certain that smallest current will flow in the resistance of _____ohms when parallel combination of 250 Ω , 150 Ω , 100 Ω ,

- 50 Ω , is connected to the (+) and (-) terminal of the battery.
- a. 250 Ω
b. 150 Ω
c. 50 Ω
d. 100 Ω
- 1473 Which of the following materials has a negative temperature coefficient of resistance?
a. Copper
b. Aluminum
c. Carbon
d. Brass
- 1474 Which is the best conductor of electricity?
a. Iron
b. Silver
c. Copper
d. Carbon
- 1475 For which of the following ampere second could be the unit?
a. Reluctance
b. Charge
c. Power
d. Energy
- 1476 All of the following are equivalent to watt except_____.
a. (amperes)²ohm
b. joules/sec
c. amperes x volts
d. amperes/volt
- 1477 A resistance having rating 10 ohms, 10 W is likely to be a_____.
a. metallic resistor
b. carbon resistor
c. wire wound resistor
d. variable resistor
- 1478 Which one of the following does not have negative temperature coefficient?
a. Aluminum
b. Paper
c. Rubber
d. Mica
- 1479 Varistors are_____.
- a. insulators
b. non-linear resistors
c. carbon resistors
d. resistors with zero temperature coefficient
- 1480 The minimum charge on an ion is_____.
a. equal to the atomic number of the atom
b. equal to the charge of an electron
c. equal to the charge of the number of electrons in an atom
d. zero
- 1481 In a series circuit with unequal resistances,_____.
a. the highest resistance has the most of the current through it
b. the lowest resistance has the highest voltage drop
c. The lowest resistance has the highest current
d. the highest resistance has the highest voltage drop
- 1482 The filament of an electric bulb is made of_____.
a. carbon
b. aluminium
c. tungsten
d. nickel
- 1483 A 3 Ω resistance having 2 A current will dissipate the power of_____.
a. 6 watts
b. 8 watts
c. 12 watts
d. 16 watts
- 1484 Which of the following statement is true?
a. A galvanometer with low resistance in parallel is a voltmeter
b. A galvanometer with high resistance in parallel is a voltmeter
c. A galvanometer with low resistance in series is an ammeter
d. A galvanometer with high resistance in series is an ammeter efficient

- 1485 The resistance of a few meters of wire conductor in closed electrical circuit is_____.
- practically zero
 - low
 - high
 - very high
- 1486 If a parallel circuit is opened in the main line, the current_____.
- increases in the branch of the lowest resistance
 - increases in each branch
 - is zero in all branches
 - is zero in the highest resistive branch
- 1487 If a wire conductor of 0.2 ohm resistance is doubled in length, its resistance becomes_____.
- 0.4 ohm
 - 0.6 ohm
 - 0.8 ohm
 - 1.0 ohm
- 1488 Three 60 W bulbs are in parallel across the 60 V power line. If one bulb burns open_____.
- there will be heavy current in the main line
 - rest of the two bulbs will not light
 - all three bulbs will light
 - the other two bulbs will light
- 1489 The four bulbs of 40 W each are connected in series with a battery across them, which of the following statement is true?
- The current through each bulb in same
 - The voltage across each bulb is not same
 - The power dissipation in each bulb is not same
 - None of the above
- 1490 Two resistances R_1 and R_2 are connected in series across the voltage source where $R_2 > R_1$ The largest drop will be across_____.
- R_2
 - R_1
 - either R_1 or R_2
 - none of them
- 1491 What will be energy used by the battery if the battery has to drive 6.28×10^{18} electrons with potential difference of 50 V across the terminal ?
- 5 joules
 - 10 joules
 - 15 joules
 - 20 joules
- 1492 The hot resistance of the bulb's filament is higher than its cold resistance because the temperature co-efficient of the filament is_____.
- zero
 - negative
 - positive
 - about 2 ohms per degree
- 1493 Heat in a conductor is produced on the passage of electric current due to_____.
- reactance
 - capacitance
 - impedance
 - resistance
- 1494 The insulation on a current carrying conductor is provided_____.
- to prevent leakage of current
 - to prevent shock
 - both of above factors
 - none of above factors
- 1495 The thickness of insulation provided on the conductors depend on_____.
- the magnitude of voltage on the conductor
 - the magnitude of current flowing through it
 - both (a) and (b)
 - none of the above
- 1496 Which of the following quantities remain the same in all parts of a series circuit?

- a. Voltage
b. Current
c. Power
d. Resistance
- 1497 The wrong statement among the following is:
a. A fuse can be fitted in an outlet socket
b. A fuse should not get overheated
c. The current rating of fuse should not exceed the rating of the smallest cable protected
d. Fuse having rating less than 3 A can be used in radio
- 1498 A 40 W bulb is connected in series with a room heater. If now 40 W bulb is replaced by 100 W bulb, the heater output will_____.
a. decrease
b. increase
c. remain same
d. heater will burn out
- 1499 A 500 W, 220 V bulbs is supplied with 110 V. Power consumption by the bulb will be_____.
a. slightly less than 125W
b. slightly greater than 125W
c. exactly 125 W
d. 250 W
- 1500 In an electric kettle water boils in 10 minutes. It is required to boil the boiler in 15 minutes, using same supply mains, then_____.
a. length of heating element should be decreased
b. length of heating element should be increased
c. length of heating element has no effect on heating if water
d. none of the above
- 1501 An electric filament bulb can be worked_____.
a. D.C. supply only
b. A.C. supply only
c. Battery supply only
d. All the above
- 1502 Resistance of a tungsten lamp_____as applied voltage increases.
a. decreases
b. increases
c. remains same
d. none of the above
- 1503 Electric current passing through the circuit produces_____.
a. magnetic effect
b. luminous effect
c. thermal effect
d. chemical effect
e. all above effects
- 1504 Resistance of a material always decreases if_____.
a. temperature of material is decreased
b. temperature of material is increased,
c. number of free electrons available become more
d. none of the above is correct
- 1505 If the efficiency of a machine is to be high, what should be low?
a. Input power
b. Losses
c. True component of power
d. kWh consumed
e. Ratio of output to input
- 1506 When electric current passes through a metallic conductor, its temperature rises. This is due_____.
a. collisions between conduction electrons and atoms
b. the release of conduction electrons from parent atoms
c. mutual collisions between metal atoms
d. mutual collisions between conducting electrons
- 1507 Two bulbs of 500W and 200W rated at 250W will have resistance ratio as_____.
a. 4 : 25
b. 25 : 4

- c. 2 : 5
d. 5 : 2
- 1508 A glass rod when rubbed with milk cloth is charged because _____.
a. it takes in proton
b. its atoms are removed
c. it gives away electrons
d. it gives away positive charge
- 1509 Whether circuit may be A.C. or D.C. which one of the following is most effective in reducing the magnitude of the current?
a. Reactor
b. Capacitor
c. Inductor
d. Resistor
- 1510 It becomes more difficult to remove _____.
a. any electron from the orbit
b. first electron from the orbit
c. second electron from the orbit
d. third electron from the orbit
- 1511 In a lamp load when more than one lamp are switched on the total resistance of the load _____.
a. increases
b. decreases
c. remains same
d. none of the above
- 1512 Two lamps 100 W and 40 W are connected in series across 230 V (alternating). Which of the following statement is correct?
a. 100 W lamp will glow brighter
b. 40 W lamp will glow brighter
c. Both lamps will glow equally bright
d. 40 W lamp will fuse
- 1513 Resistance of 220 V, 100 W lamps will be _____.
a. 4.84 Ω
b. 484 Ω
c. 48.4 Ω
d. 4840 Ω
- 1514 In the case of direct current _____.
a. magnitude and direction of current remains constant
b. magnitude and direction of current changes with time
c. magnitude of current changes with time
d. magnitude of current remains constant
- 1515 When electric current passes through a bucket full of water, lot of bubbling is observe This suggests that the type of supply is _____.
a. A.C.
b. D.C
c. any of above two
d. none of the above
- 1516 Resistance of carbon filament lamp _____ as the applied voltage increases.
a. increases
b. decreases
c. remains same
d. none of the above
- 1517 Sparking occurs when a load is switched off because the circuit has high _____.
a. resistance
b. inductance
c. capacitance
d. impedance
- 1518 Copper wire of certain length and resistance is drawn out to three times its length without change in volume, the new resistance of wire becomes _____.
a. 1/9 times
b. 3 times
c. 9 times
d. unchanged
- 1519 When resistance element of a heater fuses and then we reconnect it after removing a portion of it, the power of the heater will _____.
a. decrease
b. increase
c. remain constant

- d. none of the above
- 1520 A field of force can exist only between_____.
- two molecules
 - two ions
 - two atoms
 - two metal particles
- 1521 A substance whose molecules consist of dissimilar atoms is called_____.
- semi-conductor
 - super-conductor
 - compound
 - insulator
- 1522 1 microvolt is_____.
- $1 \times 10^{-3}V$
 - $1 \times 10^{-4}V$
 - $1 \times 10^{-5} V$
 - $1 \times 10^{-6} V$
- 1523 Which of the following could be the value of resistivity of copper?
- $1.72 \times 10^{-4} \Omega\text{-m}$
 - $1.72 \times 10^{-5} \Omega\text{-m}$
 - $1.72 \times 10^{-6} \Omega\text{-m}$
 - $1.72 \times 10^{-8} \Omega\text{-m}$
- 1524 International ohm is defined in terms of the resistance of_____.
- a column of mercury
 - a cube of carbon
 - a cube of copper
 - the unit length of wire
- 1525 Three identical resistors are first connected in parallel and then in series. The resultant resistances of the first combination to the second will be_____.
- 9 times
 - 1/9 times
 - 1/3 times
 - 8 times
- 1526 Which of the following relation is incorrect?
- $P = VI$
 - $P = I^2R$
 - $P = V/R^2$
 - $P = V^2/R$
- 1527 Which method can be used for absolute measurement of resistances?
- Lorentz method
 - Releigh method
 - Ohm's law method
 - Wheatstone bridge method
- 1528 What is the value of resistance to be connected to the combination of resistors between A and B giving 10Ω to get an equivalent resistance of 5Ω ?
- 10Ω
 - 30Ω
 - 50Ω
 - 70Ω
- 1529 Three 6 ohm resistors are connected to form a triangle. What is the resistance between any two corners?
- $3/2 \Omega$
 - 6Ω
 - 4Ω
 - $8/3 \Omega$
- 1530 Specific resistance of a substance is measured in_____.
- Ω / m
 - Ω / m^2
 - $\Omega\text{-m}$
 - m/Ω
- 1531 Two copper conductors have equal length. The cross-sectional area of one conductor is four times that of the other. If the conductor having smaller cross-sectional area has a resistance of 40 ohms the resistances of other conductor will be_____.
- 160 ohms
 - 80 ohms
 - 20 ohms
 - 10 ohms
- 1532 A nichrome wire used as a heater coil has the resistance of $2 \Omega/m$. For

- a heater of 1 kW at 200 V, the length of wire required will be
- 80 m
 - 60 m
 - 40 m
 - 20 m
- 1533 Temperature co-efficient of resistance is expressed in terms of
- ohms/°C
 - mhos/ohm°C_____.
 - ohms/ohm°C
 - mhos/°C
- 1534 Which of the following materials has the least resistivity?
- Zinc
 - Lead
 - Mercury
 - Copper
- 1535 According to the fuse law, the current carrying capacity varies as_____.
- $1/(\text{diameter})^2$
 - $1/\text{diameter}$
 - diameter
 - $(\text{diameter})^{3/2}$
- 1536 Which of the following lamps will have least resistance at room temperature?
- 25 W, 220 V
 - 100 W, 220 V
 - 200 W, 220 V
 - 60 W, 220 V
- 1537 Which resistor will be physically larger in size?
- 100 Ω, 10 W
 - 10 Ω, 50 W
 - 1 MΩ, 1/2 W
 - 1 kΩ, 1 W
- 1538 When current flows through heater coil it glows but supply wiring does not glow because_____.
- current through supply line flows at slower speed
 - supply wiring is covered with insulation layer
 - resistance of heater coil is more than the supply wires
 - supply wires are made of superior material
- 1539 The condition for the validity under Ohm's law is that
- resistance must be uniform
 - current should be proportional to the size of the resistance
 - resistance must be wire wound type
 - temperature at positive end should be more than the temperature at negative end
- 1540 Which of the following statement is correct?
- A semi-conductor is a material whose conductivity is same as between that of a conductor and an insulator
 - A semi-conductor is a material which has conductivity having average value of conductivity of metal and insulator
 - A semi-conductor is one which conducts only half of the applied volts
 - A semi-conductor is a material made of alternate layers of conducting material and insulator
- 1541 _____are the materials having electrical conductivity much less than most of the metals but much greater than that of typical insulators.
- Varistors
 - Thermistor
 - Semi-conductors
 - Variable resistors
- 1542 All good conductors have high_____.
- conductance
 - resistance
 - reluctance
 - thermal conductivity
- 1543 Voltage dependent resistors are usually made from_____.

- a. charcoal
b. silicon carbide
c. nichrome
d. graphite
- 1544 Voltage dependent resistors are used_____.
- a. for inductive circuits
b. to suppress surges
c. as heating elements
d. as current stabilizers
- 1545 The ratio of mass of proton to that of electron is nearly_____.
- a. 1840
b. 1940
c. 30
d. 4
- 1546 The number of electrons in the outer-most orbit of carbon atom is
- a. 3
b. 4
c. 6
d. 7
- 1547 With three resistances connected in parallel, if each dissipates 20 W the total power supplied by the voltage source equals to_____.
- a. 10 W
b. 20 W
c. 40 W
d. 60 W
- 1548 Three conductance's in parallel have the values $G_1 = 2000 \mu \text{ mho}$, $G_2 = 3000 \mu \text{ mho}$ and $G_3 = 4000 \mu \text{ mho}$. The total conductances will be_____.
- a. $6000 \mu \text{ mho}$
b. $7000 \mu \text{ mho}$
c. $9000 \mu \text{ mho}$
d. $10000 \mu \text{ mho}$
- 1549 A thermistor has_____.
- a. positive temperature coefficient
b. negative temperature coefficient
c. zero temperature coefficient
d. variable temperature coefficient
- 1550 If I , R and t are the current, resistance and time respectively, then according to Joule's law heat produced will be proportional to
- a. I^2Rt
b. I^2Rt^2
c. I^2R^2t
d. $I^2R^2t^2$
- 1551 Nichrome wire is an alloy of_____.
- a. lead and zinc
b. chromium and vanadium
c. nickel and chromium
d. copper and silver
- 1552 When a voltage of one volt is applied, a circuit allows one microampere current to flow through it. The conductance of the circuit is_____.
- a. $1 \mu\text{-mho}$
b. 10^6 mho
c. 1 milli-mho
d. none of the above
- 1553 Which of the following can have negative temperature coefficient?
- a. Compounds of silver
b. Liquid metals
c. Metallic alloys
d. Electrolytes
- 1554 Conductance : mho : :
a. resistance : ohm
b. capacitance : henry
c. inductance : farad
d. lumen : steradian
- 1555 1 angstrom is equal to_____.
- a. 10^{-6} mm
b. 10^{-6} cm
c. 10^{-10} m
d. 10^{-14} m
- 1556 One newton meter is same as_____.
- a. one watt
b. one joule
c. five joules
d. one joule second

- 1557 An air gap is usually inserted in magnetic circuits' to_____.
- increase m.m.f.
 - increase the flux
 - prevent saturation
 - none of the above
- 1558 The relative permeability of a ferromagnetic material is_____.
- less than one
 - more than one
 - more than 10
 - more than 100 or 1000
- 1559 The unit of magnetic flux is_____.
- henry
 - weber
 - ampere-turn/weber
 - ampere/metre
- 1560 Permeability in a magnetic circuit corresponds to_____ in an electric circuit.
- resistance
 - resistivity
 - conductivity
 - conductance
- 1561 Point out the wrong statement. Magnetic leakage is undesirable in electric machines because it_____.
- lowers their power efficiency
 - increases their cost of manufacture
 - leads to their increased weight
 - produces fringing
- 1562 Relative permeability of vacuum is_____.
- 1
 - 1 H/m
 - $1/4\pi$
 - $4\pi \times 10^{-7}$ H/m
- 1563 The magnetizing force and magnetic flux density are connected by the relation,_____.
- $B = \mu_r H / \mu_0$
 - $B = \mu H$
 - $B = H / \mu_r \mu_0$
 - $B = \mu_0 H / \mu_r$
- 1564 Permanent magnets are normally made of_____.
- alnico alloys
 - aluminium
 - cash iron
 - wrought iron
- 1565 Energy stored by a coil is doubled when its current is increased by _____percent.
- 25
 - 50
 - 41.4
 - 100
- 1566 Those magnetic materials are best suited for making armature and transformer cores which have _____permeability and_____ hysteresis loss.
- high, high
 - low, high
 - high, low
 - low, low
- 1567 The rate of rise of current through an inductive coil is maximum_____.
- at 63.2% of its maximum steady value
 - at the start of the current flow
 - after one time constant
 - near the final maximum value of current
- 1568 When both the inductance and resistance of a coil are doubled the value of_____.
- time constant remains unchanged
 - initial rate of rise of current is doubled
 - final steady current is doubled
 - time constant is halved
- 1569 The initial rate of rise of current through a coil of inductance 10 H when suddenly connected to a D.C. supply of 200 V is_____A/s
- 50
 - 20
 - 0.05

- d. 500
- 1570 A material for good magnetic memory should have_____.
- low hysteresis loss
 - high permeability
 - low retentivity
 - high retentivity
- 1571 Conductivity is analogous to_____.
- retentivity
 - resistivity
 - permeability
 - inductance
- 1572 In a magnetic material hysteresis loss takes place primarily due to_____.
- rapid reversals of its magnetization
 - flux density lagging behind magnetizing force
 - molecular friction
 - it high retentivity
- 1573 Those materials are well suited for making permanent magnets which have_____retentivity and coercivity.
- low, high
 - high, high
 - high, low
 - low, low
- 1574 If the area of hysteresis loop of a material is large, the hysteresis losses, in this material will be_____.
- zero
 - small
 - large
 - none of the above
- 1575 Hard steel is suitable for making permanent magnets because_____.
- it has good residual magnetism
 - its hysteresis loop has large area
 - its mechanical strength is high
 - its mechanical strength is low
- 1576 Silicon steel is need in electrical machines because it has_____.
- low coercivity
 - low retentivity
 - low hysteresis loss
 - high coercivity
- 1577 Conductance is analogous to_____.
- permeance
 - reluctance
 - flux
 - inductance
- 1578 The property of a material which opposes the creation of magnetic flux in it is known as_____.
- reluctivity
 - magneto-motive force
 - permeance
 - reluctance
- 1579 The unit of retentivity is_____.
- weber
 - weber/sq. m
 - ampere turn/metre
 - ampere turn
- 1580 Reciprocal of reluctance is_____.
- reluctivity
 - permeance
 - permeability
 - susceptibility
- 1581 While comparing magnetic and electric circuits, the flux of magnetic circuit is compared with which parameter of electrical circuit?
- E.M.F.
 - Current
 - Current density
 - Conductivity
- 1582 The unit of reluctance is_____.
- metre/henry
 - henry/metre
 - henry
 - 1/henry
- 1583 A ferrite core has less eddy current loss than an iron core because_____.
- ferrites have high resistance

- b. ferrites are magnetic
c. ferrites have low permeability
d. ferrites have high hysteresis
- 1584 A ferromagnetic core subjected to cycles of magnetization will exhibit hysteresis when the cycle is_____.
a. rotating
b. alternating
c. pulsating
d. any of the above
- 1585 In order to minimize loss due to hysteresis, the magnetic material should have_____.
a. high resistivity
b. low hysteresis co-efficient
c. large B-H loop area
d. high retentivity
- 1586 Hysteresis loss least depends on_____.
a. volume of material
b. frequency
c. steinmetz co-efficient of material
d. ambient temperature
- 1587 Laminated cores, in electrical machines, are used to reduce_____.
a. copper loss
b. eddy current loss
c. hysteresis loss
d. all of the above
- 1588 The mass of an ion liberated at an electrode is directly proportional to the quantity of electricity. The above statement is associated with_____.
a. Newton's law
b. Faraday's law of electromagnetic induction
c. Faraday's law of electrolysis
d. Gauss's law
- 1589 The charge required to liberate one gram equivalent of any substance is known as_____constant.
a. time
b. Boltzmann's
c. Faraday's
- d. Faraday's and Boltzmann's
- 1590 The capacity of a cell is measured in_____.
a. amperes
b. ampere-hours
c. watts
d. watt-hours
- 1591 Active materials of a lead acid cell are_____.
a. spongy lead
b. lead peroxide
c. dilute H_2SO_4
d. all of the above
- 1592 Sulphation in a lead-acid battery occurs due to_____.
a. heavy charging
b. fast charging
c. trickle charging
d. incomplete charging
- 1593 When a lead-acid battery is in fully charged condition, the colour of its positive plate is_____.
a. dark grey
b. brown
c. dark brown
d. none of above
- 1594 As compared to constant current system, the constant voltage system of charging a lead acid cell has the advantage of_____.
a. reducing time of charging
b. increasing cell capacity
c. both (a) and (b)
d. avoiding excessive gassing
- 1595 The substances which combine together to store electrical energy during the_____.
a. active
b. passive
c. inert
d. dielectric
- 1596 When the load resistances equal the generator resistance which of the following will be maximum?
a. Current

- b. Efficiency of the circuit
c. Power in the load resistance
d. Voltage across the load resistance
- 1597 What is the reasonable value of current that can be continuously drawn from a 120 ampere-hour capacity lead-acid cell?
a. 2 A
b. 20 A
c. 40 A
d. 70 A
- 1598 Which among the following constitutes the major load for an automobile battery?
a. Brake light
b. Self starter
c. Parking lights
d. Spark plugs
- 1599 Which of the following factors adversely affects the capacity of the leads acid battery?
a. Temperature of surroundings
b. Specific gravity of electrolyte
c. Rate of discharge
d. All of the above
- 1600 The current in a chemical cell is a movement of_____.
a. positive ions only
b. positive and negative ions
c. negative ions only
d. positive hole carriers
- 1601 A constant-voltage generator has _____.
a. minimum efficiency
b. minimum current capacity
c. low internal resistance
d. high external resistance
- 1602 Which secondary cell has the highest voltage out?
a. Nickel-cadmium
b. Lead-acid
c. Silver-cadmium
d. Silver-zinc
- 1603 If a battery is to be charged at a much higher rate as compared to normal charging rate, the charging should be restricted to_____.
a. 95% of the capacity of battery
b. 80% of the capacity of battery
c. 55% of the capacity of battery
d. 35% of the capacity of battery
- 1604 For preparing electrolyte for lead-acid battery, acid is poured into water to_____.
a. avoid explosion
b. make initial mixture too weak
c. conserve consumption of acid
d. avoid generation of excess heat
- 1605 Which of the following statements is incorrect about lead-acid batteries?
a. The electrolyte is weak sulphuric acid
b. The number of plates is always odd
c. The number of positive plans is one less than the number of negative plates
d. None of the above
- 1606 In a lead-acid battery, separators are provided to_____.
a. reduce internal resistance
b. facilitate flow of current
c. reduce tendency for polarization
d. avoid internal short circuits
- 1607 In a lead-acid battery fillers are provided_____.
a. to recover acid loss through vapours
b. to prevent flow of gases
c. to facilitate flow of gases
d. all of the above
- 1608 In a lead-acid battery during charging_____.
a. specific gravity of acid increases
b. voltage drops
c. anode becomes whitish in colour
d. the cell gives out energy
- 1609 A floating battery is one_____.
a. which gets charged and discharged simultaneously
b. which supplies current intermittently and also during off cycle gets charged

- c. in which battery voltage is equal to charger voltage
d. in which the current in the circuit is fully supplied by the battery
- 1610 It is normally specified by the manufactures that a lead-acid battery should not remain discharged for more than _____.
a. One hour
b. 24 hours
c. one week
d. one month
- 1611 Three cells are connected in series to form a battery. The internal resistance is 0.1Ω each. The internal resistance of the battery is _____.
a. 0.1Ω
b. 0.2Ω
c. 0.3Ω
d. 0.6Ω
- 1612 The life of a lead-acid battery is expected to be _____.
a. two months
b. one year
c. two to five years
d. ten to fifteen years
- 1613 Trickle charge is required for _____.
a. primary cells
b. lead-acid batteries
c. nickel-iron cells
d. all of the above
- 1614 In case of a lead-acid battery a wet battery covers indicates _____.
a. Over filling of the battery
b. excessive gassing during charging
c. Leaky seals at covers
d. any of the above
- 1615 The electrolyte in a Leclanche cell is
a. pyrogallic acid
b. lead stearate
c. dilute sulphuric acid
d. aqueous solution of ammonium chloride
- 1616 A lead-acid battery, even when not in use, should be recharged once in _____.
a. ten days
b. three weeks
c. six weeks
d. six months
- 1617 Sedimentation in lead-acid batteries occurs due to _____.
a. slow charging at low rate
b. overcharging at high rate
c. non-utilization for longer periods
d. over discharging at slow rate
- 1618 The terminal voltage, when the battery is being charged, decreases with _____.
a. increasing temperature
b. increasing charging rate
c. increasing state of charge
d. all of the above
- 1619 Which test is used to ascertain whether the battery plates are defective or not?
a. Open volt test
b. Cadmium test
c. High discharge test
d. Sp. gravity test
- 1620 12 V lead-acid batteries has an internal resistance of 0.01Ω . How much current will flow when the battery is short-circuited?
a. 10 A
b. 100 A
c. 600 A
d. 1200 A
- 1621 Which of the following is a dry storage?
a. Carbon-zinc cell
b. Mercury cell
c. Nickel-iron
d. Nickel-cadmium cell
- 1622 Two batteries having unequal e.m.f. _____.
a. can be connected in series only
b. cannot be connected in series
c. cannot be connected in parallel

- d. may be connected in series or in parallel
- 1623 Which of the following material is used in solar cells?
- Barium
 - Silicon
 - Silver
 - Selenium
- 1624 In a lead-acid cell, hydrogen is liberated at_____.
- positive plate
 - negative plate
 - both positive and negative plates
 - none of the plates
- 1625 Find the odd one out_____.
- lead-acid cells
 - solar ceils
 - fuel cells
 - dry cells
- 1626 The efficiency of a solar cell may be in the range_____.
- 2 to 5%
 - 10 to 15%
 - 30 to 40%
 - 70 to 80%
- 1627 A discharged battery is put on charge at 5 A for 3.5 hours. After charging it is used to supply current for 6 hours to resistance R ohms. The terminal voltage across the resistance is 12 V. If the ampere hour efficiency of the batter is 85% the value of R is_____.
- 2 ohm
 - 4 ohm
 - 4.84 ohms
 - 5.5 ohms
- 1628 A battery has a 20 hour charge rate of 10 A, the mean value of terminal voltage during charging being 2.35 V. It supplies 7 A for 25 hours when used and the mean terminal voltage, during discharging is 1.955 V. The ampere-hour and watt-hour efficiencies respectively of the batteries are_____and_____.
- 10%, 8%
 - 40%, 30 %
 - 50%, 45%
 - 87.5%, 60%
- 1629 A cell supplies a current of 0.75 A for 10 hours. Then its terminal voltage drops to a low value. What is the Ah rating of the cell?
- 2.5 Ah
 - 5 Ah
 - 7.5 Ah
 - 15 Ah
- 1630 A bank of 12 cells is connected into 3 parallel branches containing 4 cells in series. What is the equivalent open circuit e.m.f. of bank?
- 2 V
 - 4 V
 - 6 V
 - 12 V
- 1631 A battery is made up of 5 voltage cells in series. Each cell has an open circuit e.m.f. of 1.6 V and an internal resistance of 0.08 V. What is the battery terminal voltage for a load of 6 Ω ?
- 5 V
 - 6 V
 - 7 V
 - 7.5 V
- 1632 The open-circuit e.m.f. of a storage cell is 2.2 V. The terminal voltage measured when current is 6 A is found to be 1.98 V. The internal resistance of the cell is_____.
- 0.00366 Ω
 - 0.0366 Ω
 - 0.366 Ω
 - 3.66 Ω
- 1633 A 30 V source with a central resistance of 1 Ω is connected across a wire wound resistor. Maximum power will be dissipated in the resistor when its R is_____.
- 1 Ω
 - 1.5 Ω

- c. $2\ \Omega$
d. $2.5\ \Omega$
- 1634 When the internal resistance of a cell is large compared to the external resistance in the circuit then high current can flow through the external resistance by grouping the cells _____.
- in parallel
 - in series
 - in either series or parallel
 - mixed
- 1635 Electrolyte for silver plating is _____.
- potassium nitrate solution
 - dilute sulphuric acid
 - double cyanide of silver and potassium solution
 - any of the above
- 1636 For cadmium plating electrolyte used is _____.
- cadmium sulphate and sulphuric acid
 - cadmium hexa metaphosphate
 - sodium cyanide, cadmium and caustic soda
 - any of the above
- 1637 Electric supply for electroplating should be _____.
- low voltage
 - low frequency voltage
 - voltage
 - any of the above
- 1638 Which of the following is invariably seen in an electroplating plant?
- Distilled water
 - Rectifier
 - Barrel
 - Carbon brushes
- 1639 Which law(s) find application in electrolysis?
- Ohm's law
 - Faraday's laws
 - Coulomb's laws
 - Gauss's law
- 1640 Electrochemical equivalent is usually expressed in _____.
- milligrams/coulomb
 - milligrams/volt
 - milligrams/kW
 - milligrams/kVA
- 1641 Silver coating is provided for _____.
- bearing surfaces
 - decorative purposes
 - protective surfaces
 - all of the above
- 1642 Highest purity copper is obtained by _____.
- electroplating
 - roasting
 - smelting
 - any of the above processes
- 1643 In electroplating, the character of metal deposited is affected by _____.
- surface preparation
 - metal-ion concentration
 - structure of the metal
 - all of the above
- 1644 In electroplating the current efficiency is usually _____.
- 40 to 50%
 - 60 to 70%
 - 80 to 90%
 - 90 to 98%
- 1645 Coating generally recommended for hard surfacing is _____.
- lead plating
 - copper plating
 - chromium plating
 - none of the above
- 1646 Coating usually recommended for electrical contacts is that of _____.
- tin
 - gold
 - chromium
 - silver
- 1647 Galvanizing is coating of _____.
- chromium

- b. lead
c. zinc
d. tin
- 1648 The plates of lead-acid storage battery are most likely to be short-circuited if_____.
- a. sediments collect at the bottom of the battery
b. too much water is added
c. the electrolyte evaporates
d. the battery is charged too slowly
- 1649 For zinc plating optimum temperature is_____.
- a. 5°C
b. 10 to 15°C
c. 25 to 40°C
d. 50 to 80°C
- 1650 The electrode for a battery must be_____.
- a. a semi-conductor
b. an insulator
c. a good conductor of electricity
d. a bad conductor of electricity
- 1651 A cell which is used as a voltage reference source for instrument calibration?
- a. dry cell
b. solar cell
c. mercury-cadmium cell
d. nickel-cadmium cell
- 1652 121 cells, each of e.m.f. 0.121 V and internal resistance 0.121 Ω are connected in parallel. The e.m.f. of parallel combinations will be
- a. 121 x 0.121 V
b. 0.121 V
c. 100 V
d. 1000 V
- 1653 Higher current density is usually recommended for_____.
- a. tin plating
b. cadmium plating
c. bronze plating
d. chromium plating
- 1654 Which of the following substance ten added to electrolyte promotes smooth deposition?
- a. Glucose
b. Gelatine
c. Albumen
d. Any of the above
- 1655 A fuel cell converts_____energy into electrical energy.
- a. mechanical
b. magnetic
c. solar
d. chemical
- 1656 The output voltage of a silver oxide cell is_____.
- a. 1.2 V
b. 1.5 V
c. 1.8 V
d. 1.9 V
- 1657 The ampere-hour (Ah) capacity of a battery used on cars is_____.
- a. 5 to 10 Ah
b. 15 to 20 Ah
c. 20 to 30 Ah
d. 30 to 60 Ah
e. 70 to 100 Ah
- 1658 The value of specific gravity of acid when a lead-acid battery is fully charged is_____.
- a. 1.1
b. 1.15
c. 1.25
d. 1.285
- 1659 The e.m.f. of a storage battery depends upon_____.
- a. nature of electrodes
b. size of electrodes
c. shape of the cell
d. all of the above
- 1660 When n cells each of e.m.f. 'E' volts an internal resistance 'r' ohms are connected in parallel the strength of current I is given by_____.
- a. $E / (R + r/n)$
b. $E / (R + n/r)$
c. $E / (R + r)$

- d. $E / (n+Rr)$
- 1661 One ampere-hour charge is equivalent to _____.
 a. 200 coulombs
 b. 360 coulombs
 c. 3600 coulombs
 d. 6000 coulombs
- 1662 The energy in a lead-acid battery is stored in the form of _____.
 a. nuclear energy
 b. electrostatic charge
 c. solar energy
 d. chemical energy
- 1663 Laminations of core are generally made of _____.
 a. cast iron
 b. carbon
 c. silicon steel
 d. stainless steel
- 1664 Which of the following could be approximately the thickness of laminations of a D.C. machine?
 a. 0.005 mm
 b. 0.05 mm
 c. 0.5 mm
 d. 5 mm
- 1665 The armature of D.C. generator is laminated to
 a. reduce the bulk
 b. provide the bulk
 c. insulate the core
 d. reduce eddy current loss
- 1666 The resistance of armature winding depends on _____.
 a. length of conductor
 b. cross-sectional area of the conductor
 c. number of conductors
 d. all of the above
- 1667 The field coils of D.C. generator are usually made of _____.
 a. mica
 b. copper
 c. cast iron
 d. carbon
- 1668 The commutator segments are connected to the armature conductors by means of _____.
 a. copper lugs
 b. resistance wires
 c. insulation pads
 d. brazing
- 1669 In a commutator, _____.
 a. copper is harder than mica
 b. mica and copper are equally hard
 c. mica is harder than copper
 d. none of the above
- 1670 In D.C. generators the pole shoes are fastened to the pole core by _____.
 a. rivets
 b. counter sunk screws
 c. brazing
 d. welding
- 1671 According to Fleming's right-hand rule for finding the direction of induced e.m.f., when middle finger points in the direction of induced e.m.f., forefinger will point in the direction of _____.
 a. motion of conductor
 b. lines of force
 c. either of the above
 d. none of the above
- 1672 Fleming's right-hand rule regarding direction of induced e.m.f., correlates _____.
 a. magnetic flux, direction of current flow and resultant force
 b. magnetic flux, direction of motion and the direction of e.m.f. Induced
 c. magnetic field strength, induced voltage and current
 d. magnetic flux, direction of force and direction of motion of conductor
- 1673 While applying Fleming's right-hand rule to find the direction of induced e.m.f., the thumb points towards _____.
 a. direction of induced e.m.f.
 b. direction of flux

- c. direction of motion of the conductor if forefinger points in the direction of generated e.m.f.
d. direction of motion of conductor, if forefinger points along the lines of flux
- 1674 The bearings used to support the rotor shafts are generally
a. ball bearings
b. bush bearings
c. magnetic bearings
d. needle bearings
- 1675 In D.C. generators, the cause of rapid brush wear may be_____.
a. severe sparking
b. rough commutator surface
c. imperfect contact
d. any of the above
- 1676 In lap winding, the number of brushes is always_____.
a. double the number of poles
b. same as the number of poles
c. half the number of poles
d. two
- 1677 For a D.C. Generator when the number of poles and number of armature conductor is fixed, the which winding will give higher e.m.f?
a. Lap winding
b. Wave winding
c. Either of (a) and (b) above
d. Depends on other features of design
- 1678 In a four-pole D.C. machine,_____.
a. all the four poles are north poles
b. alternate poles are north and south
c. all the four poles are south poles
d. two north poles follow two south poles
- 1679 Copper brushes in D.C. machine are used_____.
a. where low voltage and high currents are involved
b. where high voltage and small currents are involved
c. in both of the above cases
- d. in none of the above cases
- 1680 A separately excited generator as compared to a self-excited generator_____.
a. is amenable to better voltage control
b. is more stable
c. has exciting current independent of load current
d. has all above features
- 1681 In case of D.C. machines, mechanical losses are primary function of_____.
a. current
b. voltage
c. speed
d. none of above
- 1682 Iron losses in a D.C. machine are independent of variations in_____.
a. speed
b. load
c. voltage
d. speed and voltage
- 1683 In D.C. generators, current to the external circuit from armature is given through_____.
a. commutator
b. solid connection
c. slip rings
d. none of above
- 1684 Requirement of speed at which machine is driven is_____.
a. more critical in the case of alternators
b. more critical in the case of D.C. generators
c. equally critical in the case of alternators as well as D.C. generators
- 1685 Brushes of D.C. machines are made of_____.
a. carbon
b. soft copper
c. hard copper
d. all of above

- 1686 In D.C. generator, on no load_____.
- magnetic neutral axis moves from geometrical neutral axis in the opposite direction of rotation
 - magnetic neutral axis coincides with geometrical neutral axis
 - magnetic neutral axis moves from geometrical neutral axis in the direction of rotation
 - none of the above
- 1687 If B is the flux density, l the length of conductor and v the velocity of conductor, then induced e.m.f. is given by_____.
- Blv
 - Blv^2
 - Bl^2v
 - Bl^2v^2
- 1688 In case of a 4-pole D.C. generator provided with a two layer lap winding with sixteen coils, the pole pitch will be_____.
- 4
 - 8
 - 16
 - 32
- 1689 The material for commutator brushes is generally_____.
- mica
 - copper
 - cast iron
 - carbon
- 1690 In a D.C. generator, if p be the number of poles and N be the r.p.m. of rotor, then the frequency of magnetic reversals will be_____.
- $N_p/2$
 - $N_p/60$
 - $N_p/120$
 - $N_p/3000$
- 1691 For generating large currents on D.C. generators which winding is generally preferred?
- Progressive wave winding
 - Lap winding
 - Retrogressive wave winding
 - Current depends on design
- 1692 The purpose of providing dummy coils in a generator is_____.
- to enhance flux density
 - to amplify voltage
 - to provide mechanical balance for the rotor
 - to reduce eddy currents
- 1693 In a D.C. generator, the armature reaction results in_____.
- demagnetization of the centers of poles
 - magnetization of inter poles
 - demagnetization of the leading pole tip and magnetization of the trailing pole tip
 - magnetization of the leading tip and demagnetization of the trailing pole tip
- 1694 In a D.C. generator in case the brushes are moved so as to bring them in magnetic neutral axis, then, there will be_____.
- demagnetization
 - cross-magnetization
 - cross-magnetization as well as demagnetization
 - none of the above
- 1695 The polarity of a D.C. generator can be reversed by_____.
- reversing the field current
 - increasing field current
 - reversing field current as well as direction of rotation
 - any of the above
- 1696 In D.C. generators, the brushes on commutator remain in contact with conductors which
- lie under south pole
 - lie under north pole
 - lie under inter polar region
 - are farthest from the poles
- 1697 In a lap wound D.C. generator having 'p' as number of poles and 'Z' as number of conductors, the

- maximum number of equalizer rings will be_____.
- Z
 - p
 - $2Z/p$
 - $2p/Z$
- 1698 If brushes of a D.C. generator are moved in order to bring these brushes in magnetic neutral axis, there will be_____.
- demagnetization only
 - cross magnetization as well as magnetization
 - cross magnetization as well as demagnetizing
 - cross magnetization only
- 1699 Armature reaction of an unsaturated D.C. machine is_____.
- cross-magnetizing
 - demagnetizing
 - magnetizing
 - none of above
- 1700 D.C. generators are connected to the bus bars or disconnected from them only under the floating condition
- to avoid sudden loading of the prime mover
 - to avoid mechanical jerk to the shaft
 - to avoid burning off a switch contacts
 - all above
- 1701 Eddy currents are induced in the pole shoes of a D.C. machine due to_____.
- oscillating magnetic field
 - pulsating magnetic flux
 - relative rotation between field and armature
 - all above
- 1702 In a D.C. machine, short-circuited field coil will result in_____.
- odour of burning insulation
 - unbalanced magnetic pull producing vibrations
 - reduction of generated voltage for which excitation has to be increased to maintain the voltage
 - all above
- 1703 Equalizer rings are required in case armature is_____.
- wave wound
 - lap wound
 - delta wound
 - duplex wound
- 1704 Welding generator will have
- lap winding
 - wave winding
 - delta winding
 - duplex wave winding
- 1705 In case of D.C. machine winding, number of commutator segments is equal to_____.
- number of armature coils
 - number of armature coil sides
 - number of armature conductors
 - number of armature turns
- 1706 For a D.C. machines laboratory following type of supply drill be suitable_____.
- rotary converter
 - mercury are rectifier
 - induction motor D.C. generator set
 - synchronous motor D.C. Generator set
- 1707 The function of pole shoes in the case of D.C. machine is
- to reduce the reluctance of the magnetic path
 - to spread out the flux to achieve uniform flux density
 - to support the field coil
 - to discharge all the above functions
- 1708 In the case of lap winding resultant pitch is_____.
- multiplication of front and back pitches
 - division of front pitch by back pitch
 - sum of front and back pitches
 - difference of front and back pitches

- 1709 A D.C. welding generator has _____.
- lap winding
 - wave winding
 - duplex winding
 - any of the above
- 1710 Which of the following statement about D.C. generators is false?
- Compensating winding in a D.C. machine helps in commutation
 - In a D.C. generator inter poles winding is connected in series with the armature winding
 - Back pitch and front pitches are both odd and approximately equal to the pole pitch
 - Equalizing bus bars are used with parallel running of D.C. shunt generators
- 1711 The demagnetizing component of armature reaction in a D.C. generator _____.
- reduces generator e.m.f.
 - increases armature speed
 - reduces inter poles flux density
 - results in sparking trouble
- 1712 Magnetic field in a D.C. generator is produced by _____.
- electromagnets
 - permanent magnets
 - both (a) and (b)
 - none of the above
- 1713 The number of brushed in a commutator depends on _____.
- speed of armature
 - type of winding
 - voltage
 - amount of current to be collected
- 1714 Compensating windings are used in D.C. generators _____.
- mainly to reduce the eddy currents by providing local short-circuits
 - to provide path for the circulation of cooling air
 - to neutralize the cross-magnetizing effect of the armature reaction
 - none of the above
- 1715 Which of the following components of a D.C. generator plays vital role for providing direct current of a D.C. generator?
- Dummy coils
 - Commutator
 - Eye bolt
 - Equalizer rings
- 1716 In a D.C. generator the ripples in the direct e.m.f. generated are reduced by _____.
- using conductor of annealed copper
 - using commutator with large number of segments
 - using carbon brushes of superior quality
 - using equalizer rings
- 1717 In D.C. generators, lap winding is used for _____.
- high voltage, high current
 - low voltage, high current
 - high voltage, low current
 - low voltage, low current
- 1718 Two generators A and B have 6-poles each. Generator A has wave wound armature while generator B has lap wound armature. The ratio of the induced e.m.f. is generator A and B will be _____.
- 2 : 3,
 - 3 : 1,
 - 8 : 2,
 - 1 : 3,
- 1719 The voltage drop for which of the follow in g types of brush can be expected to be least?
- Graphite brushes
 - Carbon brushes
 - Metal graphite brushes
 - None of the above
- 1720 The e.m.f. generated by a shunt wound D.C. generator is Now while pole flux remains constant, if the speed of the generator is doubled,

- the e.m.f. generated will be_____.
- E/2
 - 2E
 - slightly less than E
 - E
- 1721 In a D.C. generator the actual flux distribution depends upon _____.
- size of air gap
 - shape of the pole shoe
 - clearance between tips of the adjacent pole shoes
 - all of the above
- 1722 The armature core of a D.C. generator is usually made of_____.
- silicon steel
 - copper
 - non-ferrous material
 - cast-iron
- 1723 D.C. generator generates_____.
- A.C. voltage in the armature
 - D.C. voltage in the armature
 - A.C. superimposed over D.C.
 - none of the above
- 1724 Satisfactory commutation of D.C. machines requires_____.
- brushes should be of proper grade and size
 - brushes should smoothly run in the holders
 - smooth, concentric commutator properly undercut
 - all of the above
- 1725 Open circuited armature coil of a D.C. machine is_____.
- identified by the scarring of the commutator segment to which open circuited coil is connected
 - indicated by a spark completely around the commutator
 - both (a) and (b)
 - none of the above
- 1726 In a D.C. machine, fractional pitch winding is used_____.
- to increase the generated voltage
 - to reduce sparking
 - to save the copper because of shorter end connections
 - due to (b) and (c) above
- 1727 For the parallel operation of two or more D.C. compound generators, we should ensure that_____.
- voltage of the incoming generator should be same as that of bus bar
 - polarity of incoming generator should be same as that of bus bar
 - all the series fields should be run in parallel by means of equalizer connection
 - series fields of all generators should be either on positive side or negative side of the armature
 - all conditions mentioned above should be satisfied
- 1728 D.C. series generator is used_____.
- to supply traction load
 - to supply industrial load at constant voltage
 - as a booster to maintain constant voltage at the load end of the feeder
 - for none of the above purpose
- 1729 Which of the following D.C. generator will be in a position to build up without any residual magnetism in the poles?
- series generator
 - shunt generator
 - compound generator
 - self-excited generator
- 1730 Inter pole flux should be sufficient to_____.
- neutralize the commutating self induced e.m.f.
 - neutralize the armature reaction flux
 - neutralize both the armature reaction flux as well as commutating e.m.f. induced in the coil
 - perform none of the above functions

- 1731 D.C. generator generally preferred for charging automobile batteries is_____.
- series generator
 - shunt generator
 - long shunt compound generator
 - any of the above
- 1733 Permeance is the reciprocal of_____.
- flux density
 - reluctance
 - ampere-turns
 - resistance
- 1734 In D.C. generators the polarity of the inter poles_____.
- is the same as that of the main pole ahead
 - is the same as that of the immediately preceding pole
 - is opposite to that of the main pole ahead
 - is neutral as these poles do not play part in generating e.m.f.
- 1735 The e.m.f. generated in a D.C. generator is directly proportional to_____.
- flux/pole
 - speed of armature
 - number of poles
 - all of the above
- 1736 In a D.C. generator the magnetic neutral axis coincides with the geometrical neutral axis, when_____.
- there is no load on the generator
 - the generator runs on full load
 - the generator runs on overload
 - the generator runs on designed speed
- 1737 In a D.C. generator in order to reduce sparking at brushes, the self-induced e.m.f. in the coil is neutralized by all of the following except_____.
- 1732 In a D.C. generator the number of mechanical degrees and electrical degrees will be the same when_____.
- r.p.m. is more than 300
 - r.p.m. is less than 300
- 1738 In D.C. generators on no-load, the air gap flux distribution in space is_____.
- Inter poles
 - dummy coils
 - compensating winding
 - shifting of axis of brushes
- 1739 A shunt generator running at 1000 r.p.m. has generated e.m.f. as 200 V. If the speed increases to 1200 r.p.m., the generated e.m.f. will be nearly_____.
- 150 V
 - 175 V
 - 240 V
 - 290 V
- 1740 In a shunt generator the voltage build up is generally restricted by_____.
- speed limitation
 - armature heating
 - insulation restrictions
 - saturation of iron
- 1741 If a D.C. generator fails to build up the probable cause could not be_____.
- imperfect brush contact
 - field resistance less than the critical resistance
 - no residual magnetism in the generator
 - faulty shunt connections tending to reduce the residual magnetism

- 1742 Flashing the field of D.C. Generator means:
- neutralizing residual magnetism
 - creating residual magnetism by a D.C. source
 - making the magnetic losses of forces parallel
 - increasing fluid density by adding extra turns of windings on poles
- 1743 The e.m.f. induced in the armature of a shunt generator is 600 V. The armature resistance is 0.1 ohm. If the armature current is 200 A, the terminal voltage will be_____.
- 640 V
 - 620 V
 - 600 V
 - 580 V
- 1744 In a D.C. generator the critical resistance refers to the resistance of
- brushes
 - field
 - armature
 - load
- 1745 To achieve sparkless commutation brushes of a D.C. generator are rocked ahead so as to bring them_____.
- just ahead of magnetic neutral axis
 - in magnetic neutral axis
 - just behind the magnetic neutral axis
 - none of the above
- 1746 Armature coil is short-circuited by brushes when it lies_____.
- along neutral axis
 - along field axis
 - in any of the above positions
 - in none of the above positions
- 1747 A cumulatively compounded long shunt generator when operating as a motor would be_____.
- cumulatively compounded long shunt
 - differentially compounded long shunt
 - cumulatively compounded short shunt
 - differentially compounded short shunt
- 1748 To avoid formation of grooves in the commutator of a D.C. machine_____.
- the brushes of opposite polarity should track each other
 - the brushes of same polarity should track each other
 - brush position has no effect on the commutator grooving
 - Brushes of metallic material should be used
- 1749 The following constitute short-circuit in the armature winding.
- Insulation failure between two commutator bars
 - Insulation failure between two turns of a coil
 - Two or more turns of the same coil getting grounded
 - All of the above
- 1750 The rapid wear of brushes takes place due to_____.
- abrasion from dust
 - excessive spring pressure
 - rough commutator bars
 - high mica insulation between commutation bar
 - all of the above factors
- 1751 Number of tapings for each equalizer ring is equal to_____.
- number of pole pairs
 - number of poles
 - number of parallel paths
 - number of commutator segments
- 1752 A D.C. generator can be considered as_____.
- rectifier
 - prime mover
 - rotating amplifier
 - power pump
- 1753 In any rotating machine that part which houses the conductors and in

- which e.m.f. induced is to be utilized is called_____.
- rotor
 - stator
 - field
 - armature
- 1754 In a D.C. machine stray loss is the sum of_____.
- total copper loss and mechanical loss
 - armature copper loss and iron loss
 - shunt field copper loss and mechanical loss
 - iron loss and mechanical loss
- 1755 Lap winding is composed of_____.
- any even number of conductors
 - any odd number of conductors
 - that even number which is exact multiple of poles + 2
 - that even number which is exact multiple of poles
- 1756 In a D.C. generator in case the resistance of the field winding is increased, then output voltage will_____.
- increase
 - decrease
 - remain unaffected
 - fluctuate heavily
- 1757 An exciter for a turbo generator is a_____.
- separately excited generator
 - shunt generator
 - series generator
 - compound generator'
- 1758 In case of a flat compounded generator_____.
- voltage generated is less than the rated voltage
 - generated voltage is proportional to the load on the generator
 - voltage remains constant irrespective of the load
 - speed varies in proportion to the load on the generator
- 1759 Which of the following generator will have negligible terminal voltage while running on no-load?
- Series generator
 - Shunt generator
 - Compound generator
 - Separately excited generator
- 1760 Which of the following D.C. generators will be in a position to build up without any residual magnetism in the poles?
- Series generator
 - Shunt generator
 - Compound generator
 - None of the above
- 1761 In over compounded generator, full load terminal voltage is_____.
- almost zero
 - less than no-load terminal voltage
 - more than no-load terminal voltage
 - equal to no-load terminal voltage
- 1762 In a level compounded D.C. generator, full load terminal voltage is_____.
- negligibly low
 - equal to no-load terminal voltage
 - more than no-load terminal voltage
 - less than no-load terminal voltage
- 1763 The terminal voltage of a D.C. shunt generator drops on load because of all of the following reasons except_____.
- armature reaction
 - armature resistance drop
 - field weakening due to armature reaction and armature
 - commutation
- 1764 In a D.C. generator
- external resistance = internal characteristic — armature reaction
 - internal characteristic = magnetization characteristic — ohmic drop
 - external characteristic = magnetization characteristic — ohmic drop — armature reaction

- d. magnetization characteristic = external characteristic
- 1765 A sinusoidal voltage of 5 Hz is applied to the field of a shunt generator. The armature voltage wave_____.
- will be zero
 - will be of 5 Hz
 - will be of $5 \times N$ Hz
 - will be of $N/5$ Hz
- 1766 A 220 V D.C. generator is run at full speed without any excitation. The open circuit voltages will be_____.
- zero
 - about 2 V
 - about 50 V
 - 220 V
- 1767 In a separately excited generator supplying rated load the armature reaction,_____.
- is always present
 - is always absent
 - may be sometimes present
 - none of the above
- 1768 If residual magnetism is present in a D.C. generator, the induced e.m.f. at zero speed will be_____.
- zero
 - small
 - the same as rated voltage
 - high
- 1769 Armature reaction in a generator results in_____.
- demagnetization of leading pole tip and magnetization of trailing pole tip
 - demagnetization of trailing pole tip and magnetization of leading pole tip
 - demagnetizing the centre of all poles
 - magnetizing the centre of all poles
- 1770 Following energized winding of a D.C. machine should not be opened as it would produce high inductive voltage which may be dangerous to personnel and may cause its own insulation failure.
- Series field
 - Compensating field
 - Inter pole field
 - Shunt field
- 1771 Wave winding is composed of_____.
- any even number of conductors
 - any odd number of conductors
 - that even number which is exact multiple of poles + 2
 - that even number which is exact multiple of poles
- 1772 The critical resistance of the D.C. generator is the resistance of
- field
 - brushes
 - armature
 - load
- 1773 When two D.C. series generators are running in parallel, an equalizer bar is used_____.
- to increase the speed and hence generated e.m.f.
 - to increase the series flux
 - so that two similar machines will pass approximately equal currents to the load
 - to reduce the combined effect of armature reaction of both machines
- 1774 Which of the following generating machine will offer constant voltage on all loads?
- Self-excited generator
 - Separately excited generator
 - Level compounded generator
 - All of the above
- 1775 Which of the following generators will be preferred if they are required to be run in parallel?
- Shunt generators
 - Series generators
 - Compound generators
 - None of the above

- 1776 Two generators are running in parallel. One of the generators may run as motor for which of the following reasons?
- The direction of that generator is reversed
 - The speed of that generator is increased
 - The field of that generator is weakened
 - That generator takes large share of loads
- 1777 A D.C. generator works on the principle of_____.
- Lenz's law
 - Ohm's law
 - Faraday's law of electromagnetic induction
 - none of the above
- 1778 A series generator can be self-excited_____.
- only if the load current is zero
 - only if the load current is not zero
 - irrespective of the value of load current
 - none of the above
- 1779 A shunt generator can self-excite
- only if the resistance of the field circuit is less than critical value
 - only if the resistance of the field circuit is greater than critical value
 - irrespective of the value of the resistance in the field circuit
 - none of the above
- 1780 The terminal voltage of a series generator is 150 V when the load current is 5 A. If the load current is increased to 10 A, the terminal voltage will be_____.
- 150 V
 - less than 150 V
 - greater than 150 V
 - none of the above
- 1781 The open circuit voltage of a compound generator is 250 V. At full load the terminal voltage_____.
- will be less than 250 V
 - will always be 250 V
 - may be greater or less than 250 V
 - none of the above
- 1782 Two D.C. shunt generators, each with armature resistance of 0.02 ohm and field resistance of 50 ohm run in parallel and supply a total current of 1000 amperes to the load circuit. If their e.m.f's are 270 V and 265 V, their bus bar voltage will be_____.
- 270 V
 - 267.5 V
 - 265 V
 - 257.4 V
- 1783 The essential condition for parallel operation of two D.C. generators is that they have_____.
- same kW rating
 - the same operation r.p.m.
 - the same drooping voltage characteristics
 - same percentage regulation
- 1784 In case of D.C. generators, the armature voltage control is considered as suitable if the machine is driven_____.
- at constant load
 - at constant current
 - at constant torque
 - at constant VA
- 1785 When two D.C. generators are running in parallel an equalizer bar is used_____.
- to increase the series flux
 - to increase the generated e.m.f.
 - to reduce the combined effect of armature reaction of both the machines
 - so that the two identical machines will pass approximately equal currents to the load
- 1786 With a D.C. generator which of the following regulation is preferred?
- 100% regulation

- b. infinite regulation
c. 50% regulation
d. 1% regulation
- 1787 Which generator would you prefer for feeding long D.C. transmission lines?
a. Series generator
b. Shunt generator
c. Over compound generator
d. Flat compound generator
- 1788 Two generators A and B running in parallel are supplying power to a common load of 500 kW. Generator A has armature resistance equal to half that of B. Which of the following statements is correct?
a. Both generators will share load equally
b. Generator A will take load less than the load taken by generator D
c. Generator B will take more load as compared to generator A
d. None of the above
- 1789 In a D.C. generator the critical resistance can be increased by_____.
a. increasing its field resistance
b. decreasing its field resistance
c. increasing its speed
d. decreasing its speed
- 1790 The number of armature parallel paths in a two-pole D.C. generator having duplex lap winding is_____.
a. 2
b. 4
c. 6
d. 8
- 1791 For both lap and wave windings, there are as many commutator bars as the number of_____.
a. slots
b. armature conductors
c. winding elements
d. poles
- 1792 The series field of a short-shunt D.C. generator is excited by_____.
a. external current
b. armature current
c. shunt current
d. load current
- 1793 As a result of armature reaction, the reduction in the total mutual air gap flux in a D.C. generator is approximately_____.
a. 40 percent
b. 25 percent
c. 10 percent
d. 5 percent
- 1794 Shunt generators are most suited for stable parallel operation because of their_____.
a. rising voltage characteristics
b. identical voltage characteristics
c. drooping voltage characteristics
d. linear voltage characteristics
- 1795 The main factor which leads to unstable parallel operation of flat and over compounded generators is_____.
a. their rising voltage characteristics
b. unequal number of turns in their series field windings
c. unequal speed regulation of their prime movers
d. unequal series field resistances
- 1796 If a self excited D.C. generator after being installed fails to build up on its first trial run, the first thing to do is to_____.
a. reverse the field connections
b. increase the field resistance
c. increase the speed of prime mover
d. check armature insulation resistance
- 1797 If residual magnetism of a shunt generator is destroyed accidentally, it may be restored by connecting its shunt field_____.
a. in reverse
b. to a battery
c. to earth

- d. to an alternator
- 1798 The slight curvature at the lower end of the O.C.C. of a self-excited D.C. generator is due to_____.
- high armature speed
 - high field circuit resistance
 - residual pole flux
 - magnetic inertia
 - none of the above
- 1799 Which one of the following types of generators does not need equalizers for satisfactory parallel operation?
- Flat-compound
 - Over-compound
 - Under-compound
 - Series
- 1800 The_____generator has poorest voltage regulation.
- shunt
 - series
 - compound
 - over-compound
- 1801 A simple method of increasing the voltage of a D.C. generator is _____.
- to increase the length of the armature
 - to decrease the length of the armature
 - to increase the speed of rotation
 - to decrease the speed of rotation
 - any of the above
- 1802 Which one of the following generators is used for charging the batteries?
- Shunt
 - Series
 - Compound
 - Any of the above
- 1803 An external resistance added in the field of a D.C. shunt generator will_____.
- decrease the voltage of the generator
 - increase the voltage of the generator
 - increase the power delivered
- d. increase the speed of the generator
- e. decrease the speed of the generator
- 1804 An ideal D.C. generator has a regulation of_____.
- 90%
 - 70%
 - 20%
 - zero%
- 1805 Which of the following statements is incorrect in D.C. shunt generators about hysteresis loss?
- It is independent of lamination thickness
 - It can be minimize by laminating the armature
 - It depends upon the supply frequency
 - None of the above
- 1806 A properly designed D.C. generator can have an overall efficiency of_____.
- 60%
 - 80%
 - 95%
 - 100%
- 1807 In D.C. generator the change in voltage when the load is reduced from rated value to zero, expressed as a percent age of rated load voltage, is known as_____.
- efficiency
 - regulation
 - armature reactance
 - loss factor
- 1808 If the no load voltage of a certain generator is 210 V and the rated voltage is 200 V, then the voltage regulation is_____.
- 3%
 - 5%
 - 10%
 - 15%
- 1809 Which generator cannot start if there is no residual magnetism?
- Series generator
 - shunt generator

- c. Separately excited generator
d. All of the above
- 1810 In D.C. generators, the brushes remain in contact with conductors' which_____.
- a. lie under south pole
b. lie under north pole
c. lie in the inter polar gaps
d. none of the above
- 1811 When the shunt field of a compound generator is connected across both the series field and armature. Such a convention is known as_____.
- a. short shunt
b. long shunt
c. cumulative compounding
d. differential compounding
- 1812 Drop in speed of a D.C. generator due to increase in load can be compensated by_____.
- a. cooling the armature
b. increasing the armature resistance
c. reducing the load voltage
d. increasing the input to the prime mover
- 1813 No-load speed of which of the following motor will be highest?
- a. Shunt motor
b. Series motor
c. Cumulative compound motor
d. Differentiate compound motor
- 1814 The direction of rotation of a D.C. series motor can be changed by_____.
- a. interchanging supply terminals
b. interchanging field terminals
c. either of (a) and (b) above
d. None of the above
- 1815 Which of the following application requires high starting torque?
- a. Lathe machine
b. Centrifugal pump
c. Locomotive
d. Air blower
- 1816 In a D.C. motor is to be selected for conveyor which motor would be preferred?
- a. Series motor
b. Shunt motor
c. Differentially compound motor
d. Cumulative compound motor
- 1817 Which D.C. motor will be preferred for machine tools?
- a. Series motor
b. Shunt motor
c. Cumulative Compound motor
d. Differential compound motor
- 1818 Which D.C. motor will be preferred for constant speed line shafting?
- a. Cumulative compound motor
b. Differentially compound motor
c. shunt motors
d. series motors
- 1819 Which D.C. motor is preferred for elevators?
- a. Shunt motor
b. Series motor
c. Differential compound motor
d. Cumulative compound motor
- 1820 According to Fleming's left-hand rule, when the forefinger points in the direction of the field or flux, be middle finger will point in the direction of_____.
- a. current in the conductor
b. movement of conductor
c. resultant force on conductor
d. none of the above
- 1821 If the field of a D.C. shunts motor gets opened while motor is running, _____.
- a. the speed of motor will be reduced
b. the armature current will reduce
c. the motor will attain dangerously high speed
d. the motor will continue to run at constant speed
- 1822 Starters are used with D.C. motors because _____.

- a. these motors have high starting torque
 b. these motors are not self starting
 c. back e.m.f. of these motors is zero initially
 d. to restrict armature current as there is no back e.m.f. while starting
- 1823 In D.C. shunt motors as load is reduced,_____.
- a. the speed will increase abruptly
 b. the speed will increase in proportion to reduction in field
 c. the speed will remain almost constant
 d. the speed will reduce
- 1824 A D.C. series motor is that which _____.
- a. has its field winding consisting of thick wire and less turns
 b. has a poor torque
 c. can be started easily without load
 d. has almost constant speed
- 1825 For starting a D.C. motor a starter is required because_____.
- a. it limits the speed of the motor
 b. it limits the starting current to a safe value
 c. it starts the motor
 d. none of the above
- 1826 The type of D.C. motor used for shears and punches is_____.
- a. shunt motor
 b. series motor
 c. differential compound D.C. motor
 d. cumulative compound D.C. motor
- 1827 If a D.C. motor is connected across the A.C. Supply, it will_____.
- a. run at normal speed
 b. not run
 c. run at lower speed
 d. burn due to heat produced in the field winding by eddy currents
- 1828 To get the speed of D.C. motor below the normal without wastage of electrical energy_____is used.
- a. Ward Leonard control
 b. rheostatic control
 c. any of the above method
 d. none of the above method
- 1829 A direct on line starter is used for starting motors_____.
- a. up to 5 H.P.
 b. up to 10 H.P.
 c. up to 15 H.P.
 d. up to 20 H.P.
- 1830 If the speed of a D.C. shunt motor is increased the back e.m.f. of the motor will_____.
- a. decrease
 b. increase
 c. remain same
 d. become zero
- 1831 What will happen if the back e.m.f. of a D.C. motor vanishes suddenly?
- a. The motor will stop
 b. The motor will continue to run
 c. The armature may burn
 d. The motor will run noisy
- 1832 In case of D.C. shunt motors the speed is dependent on back e.m.f, only because_____.
- a. back e.m.f. is equal to armature drop
 b. armature drop is negligible
 c. flux is proportional to armature current
 d. flux is practically constant in D.C. shunt motors
- 1833 In a D.C. shunt motor, under the conditions of maximum power, the current in the armature will be _____.
- a. almost negligible
 b. rated full-load current
 c. less than hill-load current
 d. more than full-load current
- 1834 Which D.C. motor will have least percentage increase of input current, for the same percentage increase in torque?
- a. shunt motor
 b. series motor

- c. Cumulative compound motor
d. Separately excited motor
- 1835 These days D.C. motors are widely used in_____.
- a. pumping sets
b. air compressors
c. electric traction
d. machine shops
- 1836 By looking at which part of the motor, it can be easily confirmed that a particular motor is D.C. motor?
- a. Frame
b. Shaft
c. Commutator
d. Stator
- 1837 In D.C. machines fractional pitch winding is used_____.
- a. to improve cooling
b. to reduce copper losses
c. to increase the generated e.m.f.
d. to reduce the sparking
- 1838 Small D.C. motors up to 5 HP. usually have_____.
- a. 2 poles
b. 4 poles
c. 6 pples
d. 8 poles
- 1839 In case, the conditions for maximum power for a D.C. motor are established, the efficiency of the motor will be_____.
- a. 100%
b. around 90%
c. anywhere between 75% and 90%
d. less than 50%
- 1840 A shearing machine has cyclic load consisting of intermittent light and heavy loads. Which of the following D.C. motor will be suitable for this purpose?
- a. Series motor
b. Shunt motor
c. Cumulative compound motor
d. Differential compound motor
- 1841 The ratio of starting torque to full load torque is least in case of _____.
- a. Series motors
b. Shunt motors
c. compound motors
d. none of the above
- 1842 In D.C. motor which of the following can sustain the maximum temperature rise?
- a. Slip rings
b. Commutator
c. Field winding
d. Armature winding
- 1843 Which of the following law/rule can be used to determine the direction of rotation of D.C. motor?
- a. Lenz's law
b. Faraday's la w
c. Coulomb's law
d. Fleming's left-hand rule
- 1844 Which of the following load normally needs starting torque more than the rated torque?
- a. Blowers
b. Conveyors
c. Air compressors
d. Centrifugal pumps
- 1845 The starting resistance of a D.C. motor is generally_____.
- a. low
b. around 500 Ω
c. 1000 Ω
d. infinitely large
- 1846 The speed of a D.C. series motor is _____.
- a. proportional to the armature current
b. proportional to the square of the armature current
c. proportional to field current
d. inversely proportional to the armature current

- 1847 In a D.C. series motor if the armature current is reduced by 50%, the torque of the motor will be equal to_____.
- 100% of the previous value
 - 50% of the previous value
 - 25% of the previous value
 - 10% of the previous value
 - none of the above
- 1848 The current drawn by the armature of D.C. motor is directly proportional to_____.
- the torque required
 - the speed of the motor
 - the voltage across the terminals
 - none of the above
- 1849 The power mentioned on the name plate of an electric motor indicates _____.
- the power drawn in kW
 - the power drawn in kVA
 - the gross power
 - the output power available at the shaft
- 1850 In Ward Leonard method of speed control of a D.C. motor, change in speed of motor is obtained by the _____.
- change in armature voltage of D.C. motor
 - change in the field excitation of the D.C. motor
 - change in armature current of D.C. motor
 - change in supply voltage
- 1851 Which D.C. motor has got maximum self loading property?
- Series motor
 - Shunt motor
 - Cumulatively compounded motor
 - Differentially compounded motor
- 1852 Which D.C. motor will be suitable along with flywheel for intermittent light and heavy loads?
- Series motor
 - Shunt motor
 - Cumulatively compounded motor
 - Differentially compounded motor
- 1853 If a D.C. shunt motor is working at no load and if shunt field circuit suddenly opens_____.
- nothing will happen to the motor
 - this will make armature to take heavy current possibly burning it
 - this will run in excessive speed, possibly destroying armature due to excessive centrifugal stresses
 - motor will run at very slow speed
- 1854 D.C. series motors are used, _____.
- where load is constant
 - where load changes frequently
 - where constant operating speed is needed
 - in none of the above situations
- 1855 For the same H.P. rating and full load speed, which of the following motor has poor starting torque?
- shunt
 - series
 - differentially compounded
 - cumulatively compounded
- 1856 In case of conductively compensated D.C. series motors, the compensating winding is provided_____.
- as separately wound unit
 - in parallel with armature winding
 - in series with armature winding
 - in parallel with field winding
- 1857 Sparking at the commutator of a D.C. motor may result in_____.
- damage to commutator segments
 - damage to commutator insulation
 - increased power consumption
 - all of the above
- 1858 Which of the following motor is preferred for operation in highly explosive atmosphere?
- Series motor
 - Shunt motor
 - Air motor
 - Battery operated motor

- 1859 If the supply voltage for a D.C. motor is increased, which of the following will decrease?
- Starting torque
 - Operating speed
 - Full-load current
 - All of the above
- 1860 When the speed of a D.C. motor increases,_____.
- back e.m.f. increases and current drawn decreases
 - back e.m.f. as well as current drawn both increase
 - back e.m.f. as well as current drawn both decrease
 - back e.m.f. decreases and current drawn increases
- 1861 As compared to an induction motor, the air gap in a D.C. motor is_____.
- less than 50%
 - between 50% and 90%
 - same
 - more
- 1862 Field winding of a D.C. series motor is usually provided with thick wire _____.
- to provide large flux
 - to reduce the use of insulating materials
 - as it carries large load current
 - in order to reduce eddy current
- 1863 Which one of the following is not the function of pole shoes in D.C. machines?
- To reduce eddy current loss
 - To support the field coils
 - To spread out flux for better uniformity
 - To reduce the reluctance of the magnetic path
- 1864 The mechanical power developed by a shunt motor will be maximum when the ratio of back e.m.f. to applied voltage is_____.
- 4
 - 2
 - 1
 - 0.5
- 1865 The condition for maximum power in case of D.C. motor is_____.
- back e.m.f. = 2 x supply voltage
 - Back e.m.f. = $\frac{1}{2}$ x supply voltage
 - supply voltage = $\frac{1}{2}$ x back e.m.f.
 - supply voltage = back e.m.f.
- 1866 For which of the following applications a D.C. motor is preferred over an A.C. motor?
- Low speed operation
 - High speed operation
 - Variable speed operation
 - fixed speed operation
- 1867 In D.C. machines the residual magnetism is of the order of _____.
- 2 to 3 %
 - 10 to 15 %
 - 20 to 25 %
 - 50 to 75 %
- 1868 If T_a be the torque and I_a the armature current for a D.C. motor, then which of the following relation is valid before saturation?
- T_a is proportional to I_a
 - T_a is inversely proportional to I_a
 - T_a is proportional to I_a^2
 - T_a is inversely proportional to I_a^2
- 1869 D.C. motor is generally preferred for cranes and hoists?
- Series motor
 - Shunt motor
 - Cumulatively compounded motor
 - Differentially compounded motor
- 1870 Three point starters can be used for _____.
- series motor only
 - shunt motor only
 - compound motor only
 - both shunt and compound motor
- 1871 Sparking is discouraged in a D.C. motor because,_____.

- a. it increases the input power consumption
 b. commutator gets damaged
 c. both (a) and (b)
 d. none of the above
- 1872 Speed control by Ward Leonard method gives uniform speed variation _____.
 a. in one direction
 b. in both directions
 c. below normal speed only
 d. above normal speed only
- 1873 Flywheel is used with D.C. compound to reduce the peak demand by the motor compound motor will have to be _____.
 a. level compounded
 b. under compounded
 c. cumulatively compounded
 d. differentially compounded
- 1874 Which of the following motor is used where high starting torque and wide speed range control is required?
 a. Single phase capacitor start
 b. Induction motor
 c. Synchronous motor
 d. D.C. motor
 e. None of the above
- 1875 In a differentially compounded D.C. motor, if shunt field suddenly opens, _____.
 a. the motor will first stop and then run in opposite direction as series motor
 b. the motor will work as series motor and run at slow speed in the same direction
 c. the motor will work as series motor and run at high speed in the same direction
 d. the motor will not work and come to stop
- 1876 Which of the following motor has the poorest speed regulation?
 a. Shunt motor
 b. Series motor
 c. Differential compound motor
 d. Cumulative compound motor
- 1877 As the load is increased the speed of D.C. shunt motor will _____.
 a. reduce slightly
 b. increase slightly
 c. increase proportionately
 d. remains unchanged
- 1878 Which of the following method of speed control of D.C. machine will offer minimum efficiency?
 a. Voltage control method
 b. Field control method
 c. Armature control method
 d. All above methods
- 1879 Usually wide and sensitive speed control is desired in case of _____.
 a. centrifugal pumps
 b. elevators
 c. steel rolling mills
 d. colliery minders
- 1880 The speed of a motor falls from 1100 r.p.m. at no-load to 1050 r.p.m. at rated load. The speed regulation of the motor is _____.
 a. 2.36%
 b. 4.76%
 c. 6.77%
 d. 8.84%
- 1881 The speed regulation of a D.C. motor is _____.
 a. lowest speed / highest speed
 b. (highest speed - lowest speed) / average speed
 c. (no-load speed — full-load speed) / full-load speed
 d. (no load speed — full-load speed) / no-load speed
- 1882 As there is no back e.m.f. at the instant of starting a D.C. motor, in order to prevent a heavy current from flowing though the armature circuit _____.
 a. a resistance is connected in series with armature

- b. a resistance is connected parallel to the armature
 c. armature is temporarily open circuited
 d. a high value resistor is connected across the field winding
- 1883 If I_a be the armature current, then speed of a D.C. shunt motor is _____.
- a. independent of I_a
 b. proportional to I_a
 c. varies as I_a^2
 d. varies as $1 / I_a$
- 1884 In case the back e.m.f. and the speed of a D.C. motor are doubled, the torques developed by the motor will _____.
- a. remain unchanged
 b. reduce to one-fourth value
 c. increase four folds
 d. be doubled
- 1885 At the instant of starting when a D.C. motor is put on supply, it behaves like
- a. a highly resistive circuit
 b. a low resistance circuit
 c. a capacitive circuit
 d. none of the above
- 1886 The speed of a D.C. motor can be varied by varying _____.
- a. field current
 b. applied voltage
 c. resistance in series with armature
 d. any of the above
- 1887 Which one of the following is not necessarily the advantage of D.C. motors over A.C. motors?
- a. Low cost
 b. Wide speed range
 c. Stability
 d. High starting torque
- 1888 For a D.C. shunt motor if the excitation is changed _____.
- a. torque will remain constant
 b. torque will change but power will remain constant
 c. torque and power both will change
 d. torque, power and speed, all will change
- 1889 The plugging gives the _____.
- a. zero torque braking
 b. smallest torque braking
 c. highest torque braking
 d. none of the above
- 1890 The armature voltage control of D C motor provides _____.
- a. constant voltage drive
 b. constant current drive
 c. constant torque drive
 d. none of the above
- 1891 If a D.C. motor designed for 40°C ambient temperature is to be used for 50°C ambient temperature, then the motor _____.
- a. of lower H.P. should be selected
 b. of higher H.P. should be selected
 c. can be used for 50°C ambient temperature also
 d. is to be derated by a factor recommended by manufacturer and select the next higher H.P. motor
- 1892 If the terminals of armature of D.C. motor are interchanged, this action will offer following kind of braking::
- a. regenerative
 b. plugging
 c. dynamic braking
 d. none of the above
 e. any of the above
- 1893 Which of the following motors one will choose to drive the rotary compressor?
- a. D.C. shunt motor
 b. D.C. series motor
 c. Universal motor
 d. Synchronous motor
- 1894 If the speed of a D.C. shunt motor is increased, the back e.m.f. of the motor wills _____.
- a. increase
 b. decrease
 c. remain same

- d. become zero
- 1895 Why are the D.C. motors preferred for traction applications?
- Torque and speed are inversely proportional to armature current
 - Torque is proportional to armature current
 - Torque is proportional to square root of armature current
 - The speed is inversely proportional to the torque and the torque is proportional to square of armature current
- 1896 Which of the following motors have almost constant speed over their full load range?
- A.C. series motors
 - D.C. series motors
 - D.C. shunt motors
 - Low resistance squirrel cage motors
 - Both (c) and (d)
- 1897 Which of the following motors is usually used in house-hold refrigerators?
- D.C. shunt motor
 - D.C. series motor
 - Single phase induction motor (split phase start or induction run motor)
 - Reluctance motor
 - Synchronous motor
- 1898 Which of the following motors is most suitable for signaling devices and many kinds of timers?
- D.C. shunt motor
 - D.C. series motor
 - Induction motor
 - Reluctance motor
- 1899 Which motor should not be started on no-load?
- Series motor
 - Shunt motor
 - Cumulatively compounded motor
 - Differentially compounded motor
- 1900 Ward-Leonard control is basically a _____.
- voltage control method
 - field diverter method
 - field control method
 - armature resistance control method
- 1901 For constant torque drive which speed control method is preferred?
- Field control
 - Armature voltage control
 - Shunt armature control
 - Mechanical loading system
- 1902 In Ward-Leonard control the lower limit of speed is imposed by _____.
- Residual magnetism of the generator
 - core losses of motor
 - mechanical losses of motor and generator together
 - all of the above
- 1903 The main disadvantage of the Ward-Leonard control method is _____.
- high initial cost
 - high maintenance cost
 - low efficiency at light loads
 - all of the above
- 1904 Which of the following can be used to control the speed of a D.C. motor?
- Thermistor
 - Thyristor
 - Thyratron
 - Transistor
- 1905 The losses occurring in a D.C. Generator are given below. Which loss is likely to have the least proportion?
- Magnetic losses
 - Armature copper losses
 - Mechanical losses
 - Field copper losses
- 1906 The hysteresis loss in a D.C. machine least depends on _____.
- Frequency of magnetic reversals
 - Maximum value of flux density
 - Volume and grade of iron
 - Rate of flow of ventilating air

- 1907 The losses occurring in a D.C. Generator are given below. Which loss is likely to have highest proportion at rated load of the generator?
- hysteresis loss
 - field copper loss
 - armature copper loss
 - eddy current loss
- 1908 If 't' be the thickness of the laminations, then eddy current loss in a generator will vary as_____.
- $1/t$
 - $1/t^2$
 - t
 - t^2
- 1909 Which of the following loss in a D.C. generator varies significantly with the load current?
- Field copper loss
 - Windage loss
 - Armature copper loss
 - None of the above
- 1910 If B_{max} is the maximum flux density, then eddy current loss will vary as_____.
- B_{max}
 - $(B_{max})^2$
 - $(B_{max})^{1.6}$
 - $(B_{max})^{2.4}$
- 1911 The hysteresis loss in a D.C. generator varies with the frequency of magnetic reversals as_____.
- $1/f$
 - f
 - $f^{1.6}$
 - f^2
- 1912 Which of the following methods of braking is used in rolling mills?
- Dynamic braking
 - Plugging
 - Regenerative braking
 - Mechanical brakes
- 1913 Regenerative method of braking is based on that_____.
- back e.m.f. is less than the applied voltage
 - back e.m.f. is equal to the applied voltage
 - back e.m.f. of rotor is more than the applied voltage
 - none of the above
- 1914 The retardation test is applicable to shunt motors and generators and is used to find_____.
- the copper losses
 - the stray losses
 - the friction losses
 - the eddy current losses
- 1915 Four point starter in the D.C. motor is used_____.
- to decrease the field current
 - to increase the field current
 - not to effect the current passing through 'Hold on' coil even if any change in the field current takes place
 - all of the above
 - none of the above
- 1916 Which of the following motor is used in the locomotives motor drives?
- D.C. series motor
 - A.C. series motor
 - Asynchronous motor
 - Induction motor
- 1917 In hazardous area of gassy mines, material transportation is done by vehicles powered by_____.
- A.C. mains
 - D.C. mains
 - I.C. Engines
 - batteries
- 1918 Compensating winding in a D.C. machine is placed_____.
- on yoke in the pole faces
 - on yoke in the inter polar gap
 - on armature
 - none of the above
- 1919 D.C. series machine has field consisting of_____.

- a. many number of turns of thick wire
b. many number of turns of thin wire
c. few number of turns of thick wire
d. few number of turns of thin wire
- 1920 Torque developed by a D.C. motor depends upon_____.
- a. active length of the conductor
b. current flow through the conductors
c. number of conductors
d. radius of armature
e. all above factors
- 1921 D.C shunt motors are used for driving_____.
- a. trains
b. cranes
c. hoists
d. machine tools
- 1922 In a manual shunt motor starter _____.
- a. over load relay is connected in series and no volt relay in parallel with the load
b. over load relay is connected in parallel and no volt relay in series with the load
c. over load relay and no volt relay are both connected in series with the load
d. over load relay and no volt relay are both connected in parallel with the load
- 1923 Which of the following steps is likely to result in reduction of hysteresis loss in a D.C. generator?
- a. Providing laminations in armature core
b. Providing laminations in stator frame
c. Using non-magnetic material for frame
d. Using material of low hysteresis coefficient for armature core material
- 1924 Which loss in a D.C. generator varies with load?
- a. Copper loss
b. Eddy current loss
c. Hysteresis loss
d. Windage loss
- 1925 Which loss in a D.C. generator does not vary with load as well as flux density?
- a. Copper loss
b. Eddy current loss
c. Hysteresis loss
d. Windage loss
- 1926 Which of the following loss in a D.C. generator is dissipated in the form of heat?
- a. Mechanical loss
b. Core loss
c. Copper loss
d. All of the above
- 1927 Which of the following losses are significantly reduced by laminating the core of a D.C. generator?
- a. Hysteresis losses
b. Eddy current losses
c. Copper losses
d. Windage losses
- 1928 The total losses in a well designed D.C. generator of 10 kW will be nearly_____.
- a. 100 W
b. 500 W
c. 1000 W
d. 1500 W
- 1929 The condition for maximum efficiency for a D.C. generator is _____.
- a. eddy current losses = stray losses
b. hysteresis losses = eddy current losses
c. copper losses= 0
d. variable losses = constant losses
- 1930 D.C. generators are normally designed for maximum efficiency around_____.
- a. full-load
b. rated r.p.m.
c. rated voltage
d. all of the above

- 1931 In a D.C. generator, the iron losses mainly take place in_____.
- yoke
 - conmmutator
 - armature conductors
 - armature rotor
- 1932 D.C. generators are installed near the load centres to reduce_____.
- iron losses
 - line losses
 - sparking
 - corona losses
- 1933 The purpose of retardation test on D.C. shunt machines is to find out _____.
- Stray losses
 - eddy current losses
 - field copper losses
 - windage losses
- 1934 Hopkinson's test on D.C. machines is conducted at _____.
- no-load
 - part load
 - full-load
 - overload
- 1935 For which types of motor, dynamic braking is generally used?
- Shunt motor
 - Series motors
 - Compound motors
 - All of the above
- 1936 During rheostatic braking the braking torque is proportional to _____.
- (speed)
 - (speed)²
 - (speed)⁻¹
 - (speed)⁻²
- 1937 Which method of braking is generally used in elevators?
- Plugging
 - Regenerative braking
 - Rheostatic braking
 - None of the above
- 1938 In variable speed motor,_____.
- a stronger commutating field is needed at low speed than at high speed
 - a weaker commutating field is needed at low speed than at high speed
 - same commutating field is needed at low speed than at high speed
 - none of the above is correct
- 1939 When the armature of a D.C. motor rotates, e.m.f. induced is_____.
- self-induced e.m.f.
 - mutually induced e.m.f.
 - back e.m.f.
 - none of the above
- 1940 Where D.C. motor of 12 H.P. or more requires frequent starting, stopping, reversing and speed control,_____.
- drum type controller is used
 - three point starter is used
 - four point starter is used
 - all above can be used
- 1941 If a D.C. shunt motor is working at full load and if shunt field circuit suddenly opens,_____.
- this will make armature to take heavy current, possibly burning it
 - this will result in excessive speed, possibly destroying armature due to excessive centrifugal stresses
 - nothing will happen to motor
 - motor will come to stop
- 1942 D.C. motor is to drive a load which has certain minimum value for most of the time and some peak value for short duration. We will select the_____.
- series motor
 - shunt motor
 - compound motor
 - any of the above
- 1943 D.C. motor is to a drive a load which is almost nil for certain part of the load cycle and peak value for short

- duration. We will select this _____.
- series motor
 - shunt motor
 - compound motor
 - any of the above
- 1944 Which D.C. motor has got maximum self relieving property?
- Series motor
 - Shunt motor
 - Cumulatively compounded motor
 - Differentially compounded motor
- 1945 Voltage equation for D.C. motor is _____.
- $E_b = V + I_a R_a$
 - $V = E_b + I_a R_a$
 - $E_b = V - I_a^2 R_a$
 - $V = E_b - I_a R_a$
- 1946 A 230 V D.C. shunt motor takes 32 A at full load. The back e.m.f. on full load, if the resistances of motor armature and shunt field windings are 0.2Ω and 115Ω respectively, will be _____.
- 210 V
 - 215 V
 - 220 V
 - 224 V
- 1947 One D.C. motor drives another D.C. motor. The second D.C. motor when excited and driven _____.
- runs as a generator
 - does not run as a generator
 - also runs as a motor
 - comes to stop after sometime
- 1948 Which of the following D.C. motors has the least drop in speed between no-load and nominal load?
- Series motor without commutating poles
 - Series motor with commutating poles
 - Shunt motor with commutating pole
 - Compound motor without commutating poles
- 1949 The speed of a series motor at no load is _____.
- infinity
 - 4000 r.p.m.
 - 2000 r.p.m. .
 - 1000 r.p.m.
 - none of the above
- 1950 In a D.C. motor if the back e.m.f. is absent _____.
- motor will burn
 - motor will not run at all
 - motor will run at very slow speed
 - motor will run at very high speed
- 1951 A series motor is started without load. The effect is that _____.
- the back e.m.f. decreases
 - the torque increases rapidly
 - the speed increases rapidly
 - the current drawn increases rapidly
- 1952 What will happen if supply terminals of D.C. shunt motor are interchanged?
- The direction of rotation will reverse
 - Motor will stop
 - Motor will run at speed lower than the normal speed in the same direction
 - Motor will run at its normal speed in the same direction as it was running
- 1953 When the electric train is moving down a hill the D.C. motor act as _____.
- D.C. series generator
 - D.C. shunt generator
 - D.C. shunt motor
 - D.C. series motor
- 1954 Which of the following methods is most economical for finding the no-load losses of a large D.C. shunt motor?
- Retardation test
 - Swinburne's test
 - Hopkinson's test
 - none of the above

- 1955 Which of the following statement is incorrect? If a starter is not used with large D.C. motor, it will draw a starting current which_____.
- will produce very low starting torque
 - will produce excessive line voltage drop
 - will damage the commutator
 - is many times its full-load current
- 1956 The rated speed of a given D.C. Shunt motor is 900 r.p.m. To run this machine at 1000 r.p.m., which of the following speed control scheme will be used?
- Ward-Leonard control
 - Armature current resistance control
 - Field resistance control
 - None of the above
- 1957 In electric motors carbon brushes are used to_____.
- provide a path for flow of current
 - prevent sparking during commutation
 - prevent overheating of armature windings
 - brush off carbon deposits on the commutator
- 1958 What is the effect produced by the electric current in an electric motor?
- Heating effect only
 - Magnetic effect only
 - Heating as well as magnetic effect
 - Heating as well as chemical effect
- 1959 In a motor, energy conversion would not have been possible but for the_____.
- production of opposing back e.m.f. E_b in the armature
 - input energy from supply
 - use of commutator
 - application of Fleming's left-hand rule
- 1960 In a D.C. motor, unidirectional torque is produced with the help of_____.
- end plates
 - bushes
 - commutator
 - both (b) and (c)
- 1961 In a D.C. motor, the ratio E_b/V_a indicates_____.
- running torque of the motor
 - starting torque of the motor
 - efficiency of the motor
 - speed regulation of the motor
- 1962 The speed of a D.C. motor, under constant load conditions, is affected by_____.
- back e.m.f.
 - field flux
 - armature current
 - none of the above
- 1963 A D.C. shunt motor is rotating in clockwise direction as viewed from one end. The polarity of connection of the armature and field winding are reversed simultaneously. The motor will_____.
- rotate in clockwise direction
 - rotate in anti-clockwise direction
 - will not rotate at all
 - gain excessively high speed
- 1964 If the field circuit of a loaded shunt motor is suddenly opened_____.
- torque developed by the motor would be reduced to zero
 - it would race to almost infinite speed
 - it would draw abnormally high armature current
 - the fuse or circuit breaker will open the circuit before too much damage is done to the motor
- 1965 A series motor is best suited for driving_____.
- machine tools
 - cranes and hoists
 - shear and punches
 - none of the above
- 1966 Which of the following motor has high starting torque?

- a. Synchronous motor
b. A.C. series motor
c. D.C. series motor
d. Induction motor
- 1967 While starting a differential compound motor, it is best to short the series field in order to avoid _____.
a. excessive starting period
b. motor starting in wrong direction
c. tripping of the circuit breaker
d. large inrush of current
- 1968 In a D.C. motor constant torque is produced due to _____.
a. rotor laminations
b. end-plates
c. pole shoes
d. commutator
- 1969 The operation of electric generators and motors depend on the interaction between magnetic field and _____.
a. copper conductors
b. electric field
c. electric current
d. commutator
- 1970 The simplest form of a motor controller is _____.
a. relay
b. toggle switch
c. drum switch
d. magnetic switch
- 1971 All motors, basically, operate on the principle of either repulsion or _____.
a. induction
b. semi-conduction
c. capacitance
d. electro-magnetism
- 1972 The maximum end-play of a motor is about _____.
a. 10 mm
b. 6 mm
c. 2 mm
d. 0.4 mm
- 1973 A face plate starter is employed for starting _____.
a. induction motor
b. universal motor
c. synchronous motor
d. d.c. series motor
- 1974 If the no-voltage release of a D.C. Motor starter fails to work on resumption of supply after a break, the motor will _____.
a. not start automatically
b. start automatically without trouble
c. get damaged
d. develop very low torque
- 1975 A D.C. series motor, as compared to shunt and compound motors, has the highest torque at the start because of its comparatively _____.
a. stronger series field
b. lower armature resistance
c. large armature current
d. fewer series turns
- 1976 Which of the following motors, on removal of load, will run at the highest speed?
a. Shunt motor
b. Series motor
c. Differential compound
d. Cumulative compound
- 1977 The mechanical power developed by a D.C. motor is equal to _____.
a. power input + losses
b. back e.m.f. x armature current
c. power output x losses
d. power output x efficiency
- 1978 Which of the following statements is correct, in case of a D.C. series motor?
a. It should be directly connected to the load
b. It may run away if its field becomes open
c. It is a constant speed motor
d. It cannot be used where high starting torque is required

- 1979 The variable resistor shunting the field of a D.C. series motor is called a _____.
- armature diverter
 - voltage regulator
 - field diverter
 - potential divider
- 1980 Between Field's test and Hopkinson's test the main common thing is that both _____.
- use negligible power
 - are regenerative tests
 - need two similar mechanically-coupled motors
 - need two electrically coupled series motors
- 1981 The use of armature diverter in the rheostatic method of speed control for a D.C. shunt motor makes the method _____.
- less expensive
 - less wasteful
 - suitable for rapidly changing loads
 - unsuitable for changing loads
- 1982 The series parallel system of speed control of D.C. series motors widely used in traction work gives a speed range of about _____.
- 1:1
 - 1:8
 - 1:6
 - 1:4
- 1983 If conditions for maximum power for a D.C. motor are established, the efficiency of the motor will be _____.
- less than 50%
 - 60 to 70%
 - 80 to 90%
 - 100%
- 1984 In which of the following tests only one motor is required?
- Brake test
 - Hopkinson's test
 - Field's test
 - Swinburne's test
- 1985 In Field's test for series motors, one motor drives the other machine as _____.
- cumulative compound generator
 - differential compound generator
 - separately excited generator
 - series generator
- 1986 A motor for punching machine is usually subjected to _____.
- no load
 - continuous part load
 - continuous full load
 - intermittent load
- 1987 Which of the following is not necessarily the advantage of D.C. motors over A.C. motors?
- Better speed control
 - Low cost
 - High starting torque
 - Wide speed range
- 1988 The armature shaft of a D.C. Motor must be able to withstand _____.
- any unbalanced magnetic pull on the armature core
 - twisting strains due to transmission of torque
 - bending moment due to the weight of the armature and commutator
 - all of the above
- 1989 Which of the following loss of D.C. Motor decreases with increase in load?
- Friction and windage loss
 - Core loss
 - Brush contact loss
 - none of the above
- 1990 In an overloaded motor, main danger arises due to _____.
- winding getting overheated
 - bus bars getting heated
 - starter getting damaged
 - bearings getting overheated
- 1991 A wide and very sensitive speed control is usually required in case of _____.
- elevators

- b. steel rolling mills
c. colliery minders
d. all of the above
- 1992 For which application a D.C. motor is preferred over an A.C. motor?
a. High speed operation
b. Low speed operation
c. Fixed speed operation
d. Variable speed operation
- 1993 Regenerative braking on D.C. shunt motor is used when_____.
a. the load has overhauling characteristics
b. the load is variable
c. the load also acts as a braking force
d. the load is constantly decreasing
- 1994 Which motor should be used for centrifugal pumps?
a. Series motor
b. Shunt motor
c. Either of the above
d. None of the above
- 1995 Which of the following methods is most effective in finding out the no load losses in a large D.C. shunt motor?
a. Field's test
b. Ward-Leonard test
c. Block rotor test
d. Swinburne's test
e. Hopkinson's test
- 1996 A D.C. motor can be easily identified by_____.
a. winding
b. commutator
c. size of conductor
d. yoke
- 1997 The function of a field regulator for motor compound motor is to _____.
a. control the flux
b. limit the armature current
c. demagnetize the field partially
d. none of the above
- 1998 The main disadvantage of Hopkinson's test for finding efficiency of the shunt D.C. motors is that it_____.
a. needs one motor and one generator
b. requires two identical shunt machines
c. requires full-load power
d. ignores any change in iron loss
- 1999 Which losses can be determined by performing the retardation test?
a. Friction losses
b. Eddy current losses
c. Stray losses
d. Copper losses
- 2000 The generated e.m.f. and the current are in the opposite direction in case of_____.
a. generators
b. motors
c. both (a) and (b)
d. none of the above
- 2001 Speed control of a cumulatively compounded D.C. motor can be affected through change of _____.
a. field resistance
b. armature resistance
c. armature voltage
d. any of the above
- 2002 Ward-Leonard system of speed control is not recommended for _____.
a. very low speeds
b. frequent motor reversals
c. wide speed range
d. constant speed operation
- 2003 Which of the following can be used for controlling the speed of a D.C. motor?
a. Thermistor
b. Transistor
c. Thyatron
d. Thyristor
- 2004 Hopkinson's test is conducted at _____.
a. no load
b. part load

- c. low load
d. full load
- 2005 Which of the following tests can be conducted on all types of D.C. machines?
a. Hopkinson's test
b. Running down test
c. Block rotor test
d. Field's test
e. Brake test
- 2006 In case of a shunt motor if the supply voltage is increased by 10%, which of the following will decrease?
a. full load current
b. full load speed
c. starting torque
d. none of the above
- 2007 Which of the following, in a D.C. Motor, can sustain the maximum temperature rise?
a. Commutator
b. Armature windings
c. Slip rings
d. Field windings
- 2008 Speed control by varying the armature circuit resistance, in a D.C. motor, provides a_____.
a. constant torque drive
b. variable torque drive
c. constant power drive
d. variable power drive
- 2009 Speed control by the variation of flux, in a D.C. shunt motor, will give_____.
a. constant torque drive
b. variable torque drive
c. constant power drive
d. variable power drive
- 2010 Which of the following tests can be used to determine no-load losses in a D.C. shunt motor?
a. Running down test
b. Swinburne's test
c. Field test
d. Brake test
- 2011 In regenerative braking,_____.
a. motor energy is dissipated as heat
b. motor energy is dissipated in armature heating
c. motor energy is dissipated in windage losses
d. motor is made to run as a generator
- 2012 Regenerative braking on shunt motors is used when_____.
a. the load is variable
b. the load is constantly decreasing
c. the load acts as a braking force
d. the load has overhauling characteristics
- 2013 Which of the following methods gives the greatest braking torque?
a. Regenerative braking
b. Plugging
c. Rheostatic braking
d. None of the above.
- 2014 A brake test on D.C. motors is usually restricted to_____.
a. small horse power motors
b. variable speed motors
c. high speed motors
d. open frame type motors
- 2015 Which of the following does not change in a transformer?
a. Current
b. Voltage
c. Frequency
d. All of the above
- 2016 In a transformer the energy is conveyed from primary to secondary_____.
a. through cooling coil
b. through air
c. by the dux
d. none of the above
- 2017 A transformer core is laminated to_____.
a. reduce hysteresis loss
b. reduce eddy current losses
c. reduce copper losses
d. reduce all above losses

- 2018 The degree of mechanical vibrations produced by the laminations of a transformer depends on _____.
 a. tightness of clamping
 b. gauge of laminations
 c. size of laminations
 d. all of the above
- 2019 The no-load current drawn by transformer is usually what percent of the full-load current?
 a. 0.2 to 0.5 per cent
 b. 2 to 5 per cent
 c. 12 to 15 per cent
 d. 20 to 30 per cent
- 2020 The path of a magnetic flux in a transformer should have _____.
 a. high resistance
 b. high reluctance
 c. low resistance
 d. low reluctance
- 2021 No-load on a transformer is carried out to determine _____.
 a. copper loss
 b. magnetizing current
 c. magnetizing current and loss
 d. efficiency of the transformer
- 2022 The dielectric strength of transformer oil is expected to be _____.
 a. 1 kV
 b. 33 kV
 c. 100 kV
 d. 330 kV
- 2023 Sumpner's test is conducted on transformers to determine _____.
 a. temperature
 b. stray losses
 c. all-day efficiency
 d. none of the above
- 2024 The permissible flux density in case of cold rolled grain oriented steel is around _____.
 a. 1.7 Wb/m^2
 b. 2.7 Wb/m^2
 c. 3.7 Wb/m^2
 d. 4.7 Wb/m^2
- 2025 The efficiency of a transformer will be maximum when _____.
 a. copper losses = hysteresis losses
 b. hysteresis losses = eddy current losses
 c. eddy current losses = copper losses
 d. copper losses = iron losses
- 2026 No-load current in a transformer _____.
 a. lags behind the voltage by about 75°
 b. leads the voltage by about 75°
 c. lags behind the voltage by about 15°
 d. leads the voltage by about 15°
- 2027 The purpose of providing an iron core in a transformer is to _____.
 a. provide support to windings
 b. reduce hysteresis loss
 c. decrease the reluctance of the magnetic path
 d. reduce eddy current losses
- 2028 Which of the following is not a part of transformer installation?
 a. Conservator
 b. Breather
 c. Buchholz relay
 d. Exciter
- 2029 While conducting short-circuit test on a transformer the following side is short circuited _____.
 a. High voltage side
 b. Low voltage side
 c. Primary side
 d. Secondary side
- 2030 In the transformer following winding has got more cross-sectional area _____.
 a. Low voltage winding
 b. High voltage winding
 c. Primary winding
 d. Secondary winding
- 2031 A transformer cannot raise or lower the Voltage of a D.C. supply because _____.
 a. there is no need to change the D.C. Voltage

- b. a D.C. circuit has more losses
 c. Faraday's laws of electromagnetic induction are not valid since the rate of change of flux is zero
 d. none of the above
- 2032 Primary winding of a transformer _____.
- is always a low voltage winding
 - is always a high voltage winding
 - could either be a low voltage or high voltage winding
 - none of the above
- 2033 Which winding in a transformer has more number of turns?
- Low voltage winding
 - High voltage winding
 - Primary winding
 - Secondary winding
- 2034 Efficiency of a power transformer is of the order of _____.
- 100 per cent
 - 98 per cent
 - 50 per cent
 - 25 per cent
- 2035 In a given transformer for given applied voltage, losses which remain constant irrespective of load changes are _____.
- friction and windage losses
 - copper losses
 - hysteresis and eddy current losses
 - none of the above
- 2036 A common method of cooling a power transformer is _____.
- natural air cooling
 - air blast cooling
 - oil cooling
 - any of the above
- 2037 The no load current in a transformer lags behind the applied voltage by an angle of about _____.
- 180°
 - 120°
 - 90°
 - 75°
- 2038 In a transformer routine efficiency depends upon _____.
- supply frequency
 - load current
 - power factor of Load
 - both (a) and (b)
- 2039 In the transformer the function of a conservator is to _____.
- provide fresh air for cooling the transformer
 - supply cooling oil to transformer in time of need
 - protect the transformer from damage, when oil expands due to heating
 - none of the above
- 2040 Natural oil cooling is used for transformers up to a rating of _____.
- 3000 kVA
 - 1000 kVA
 - 500 kVA
 - 250 kVA
- 2041 The maximum efficiency of a distribution transformer is _____.
- at no load
 - at 50% full load
 - at 80% full load
 - at full load
- 2042 Transformer breathes in when _____.
- load on it increases
 - load on it decreases
 - load remains constant
 - none of the above
- 2043 No-load current of a transformer has _____.
- has high magnitude and low power factor
 - has high magnitude and high power factor
 - has small magnitude and high power factor
 - has small magnitude and low power factor

- 2044 Spacers are provided between adjacent coil_____.
- to provide free passage to the cooling oil
 - to insulate the coils from each other
 - both (a) and (b)
 - none of the above
- 2045 Greater the secondary leakage flux _____.
- less will be the secondary induced e.m.f.
 - less will be the primary induced e.m.f.
 - less will be the primary terminal voltage
 - none of the above
- 2046 The purpose of providing iron core in a step up transformer is_____.
- to provide coupling between primary and secondary
 - to increase the magnitude of mutual flux
 - to decrease the magnitude of magnetizing current
 - to provide all above features
- 2047 The power transformer is a constant _____.
- voltage device
 - current device
 - power device
 - main flux device
- 2048 If R_2 is the resistance of secondary winding of the transformer and K is the transformation ratio then the equivalent secondary resistance referred to primary will be_____.
- R_2/K
 - R_2/K^2
 - R_2^2/K^2
 - R_2^2/K
- 2049 What will happen if the transformers working in parallel are not connected with regard to polarity ?
- The power factor of the two transformers will be different from the power factor of common load
 - Incorrect polarity will result in dead short circuit
 - The transformers will not share load in proportion to their kVA ratings
 - none of the above
- 2050 If the percentage impedances of the two transformers working in parallel are different, then_____.
- transformers will be overheated
 - power factors of both the transformers will be same
 - parallel operation will be not possible
 - parallel operation will still be possible, but the power factors at which the two transformers operate will be different from the power factor of the common load
- 2051 In a transformer the tapings are generally provided on_____.
- primary side
 - secondary side
 - low voltage side
 - high voltage side
- 2052 The use of higher flux density in the transformer design
- reduces weight per kVA
 - reduces iron losses
 - reduces copper longer
 - increases part load efficiency
- 2053 The chemical used in breather for transformer should have the quality of_____.
- ionizing air
 - absorbing moisture
 - cleansing the transformer oil
 - cooling the transformer oil
- 2054 The chemical used in breather is_____.
- asbestos fibre
 - silica sand
 - sodium chloride
 - silica gel

- 2055 The transformer ratings are usually expressed in terms of_____.
- Volts
 - amperes
 - kW
 - kVA
- 2056 The noise resulting from vibrations of laminations set by magnetic forces is termed as_____.
- magnetostriction
 - boo
 - hum
 - zoom
- 2057 Hysteresis loss in a transformer varies as_____. (B_{max} = maximum flux density)
- B_{max}
 - $B_{max}^{1.6}$
 - $B_{max}^{1.85}$
 - $B_{max}^{2.4}$
- 2058 Material used for construction of transformer core is usually_____.
- wood
 - copper
 - aluminium
 - silicon steel
- 2059 The thickness of laminations used in a transformer is usually_____.
- 0.4 mm to 0.5 mm
 - 4 mm to 5 mm
 - 14 mm to 15 mm
 - 25 mm to 40 mm
- 2060 The function of conservator in a transformer is_____.
- to protect against internal fault
 - to reduce copper as well as core losses
 - cool the transformer oil
 - take care of the expansion and contraction of transformer oil due to variation of temperature of surroundings
- 2061 The highest voltage for transmitting electrical power in India is_____.
- 33 kV
 - 66 kV
 - 132 kV
 - 400 kV
- 2062 In a transformer's resistance between its primary and secondary is_____.
- zero
 - 1 ohm
 - 1000 ohms
 - infinite
- 2063 Transformer oil must be free from_____.
- sludge
 - odour
 - gases
 - moisture
- 2064 A Buchholz relay can be installed on_____.
- auto-transformers
 - air-cooled transformers
 - welding transformers
 - oil cooled transformers
- 2065 Gas is usually not liberated due to dissociation of transformer oil unless the oil temperature exceeds_____.
- 50°C
 - 80°C
 - 100°C
 - 150°C
- 2066 The main reason for generation of harmonics in a transformer could be_____.
- fluctuating load
 - poor insulation
 - mechanical vibrations
 - saturation of core
- 2067 Distribution transformers are generally designed for maximum efficiency around_____.
- 90% load
 - zero load
 - 25% load
 - 50% load

- 2068 Which of the following property is not necessarily desirable in the material for transformer core?
- Mechanical strength
 - Low hysteresis loss
 - High thermal conductivity
 - High permeability
- 2069 Star/star transformers work satisfactorily when_____.
- load is unbalanced only
 - load is balanced only
 - on balanced as well as unbalanced loads
 - none of the above
- 2070 Delta/star transformer works satisfactorily when_____.
- load is balanced only
 - load is unbalanced only
 - on balanced as well as unbalanced loads
 - none of the above
- 2071 Buchholz's relay gives warning and protection against_____.
- electrical fault inside the transformer itself
 - electrical fault outside the transformer in outgoing feeder
 - for both outside and inside faults
 - none of the above
- 2072 The magnetizing current of a transformer is usually small because it has_____.
- small air gap
 - large leakage flux
 - laminated silicon steel core
 - fewer rotating parts
- 2073 Which of the following does not change in ordinary transformer?
- Frequency
 - Voltage
 - Current
 - Any of the above
- 2074 Which of the following properties is not necessarily desirable for the material for transformer core?
- Low hysteresis loss
 - high permeability
 - High thermal conductivity
 - Adequate mechanical strength
- 2075 The leakage flux in a transformer depends upon_____.
- load current
 - load current and voltage
 - load current, voltage and frequency
 - load current, voltage, frequency and power factor
- 2076 The path of the magnetic flux in transformer should have_____.
- high reluctance
 - low reactance
 - high resistance
 - low resistance
- 2077 Noise level test in a transformer is a_____.
- special test
 - routine test
 - type test
 - none of the above
- 2078 Which of the following is not a routine test on transformers?
- Core insulation voltage test
 - Impedance test
 - Radio interference test
 - Polarity test
- 2079 A transformer can have zero voltage regulation at_____.
- leading power factor
 - lagging power factor
 - unity power factor
 - Zero power factor
- 2080 Helical coils can be used on_____.
- low voltage side of high kVA transformers
 - high frequency transformers
 - high voltage side of small capacity transformers
 - high voltage side of high kVA rating transformers
- 2081 Harmonics in transformer result in_____.

- a. increased core losses
b. increased I^2R losses
c. magnetic interference with communication circuits
d. all of the above
- 2082 The core used in high frequency transformer is usually_____.
- a. copper core
b. cost iron core
c. air core
d. mild steel core
- 2083 The full-load copper loss of a transformer is 1600 W. At half-load, the copper losses will be_____.
- a. 6400 W
b. 1600 W
c. 800 W
d. 400 W
- 2084 The value of flux involved in the e.m.f. equation of a transformer is_____.
- a. average value
b. r.m.s. value
c. maximum value
d. instantaneous value
- 2085 Silicon steel used in laminations mainly reduces_____.
- a. hysteresis loss
b. eddy current losses
c. copper losses
d. all of the above
- 2086 Which winding of the transformer has less cross-sectional area ?
- a. Primary winding
b. Secondary winding
c. Low voltage winding
d. High voltage winding
- 2087 Power transformers are generally designed to have maximum efficiency around_____.
- a. no-load
b. half-load
c. near full-load
d. 10% overload
- 2088 Which of the following is the main advantage of an auto-transformer over a two winding transformer?
- a. Hysteresis losses are reduced
b. Saving in winding material
c. Copper losses are negligible
d. Eddy losses are totally eliminated
- 2089 During short-circuit test iron losses are negligible because_____.
- a. the current on secondary side is negligible
b. the voltage on secondary side does not vary
c. the voltage applied on primary side is low
d. full-load current is riot supplied to the transformer
- 2090 Two transformers are connected in parallel. These transformers do not have equal percentage impedance. This is likely to result in_____.
- a. short-circuiting of the secondary
b. power factor of one of the transformers is leading while that of the other lagging
c. transformers having higher copper losses will have negligible core losses
d. loading of the transformers not in proportion to their kVA ratings
- 2091 The change in volume of transformer cooling oil due to variation of atmospheric temperature during day and night is taken care of by which part of transformer?
- a. Conservator
b. Breather
c. Bushings
d. Buchholz relay
- 2092 An ideal transformer is one which has_____.
- a. no losses and magnetic leakage
b. interleaved primary and secondary windings
c. a common core for its primary and secondary windings

- d. core of stainless steel and winding of pure copper metal
e. none of the above
- 2093 When a given transformer is run at its rated voltage but reduced frequency, its_____.
- a. flux density remains unaffected
b. iron losses are reduced
c. core flux density is reduced
d. Core flux density is increased
- 2094 In an actual transformer the iron loss remains practically constant from no-load to full-load because_____.
- a. value of transformation ratio remains constant
b. permeability of transformer core remains constant
c. core flux remains practically constant
d. primary voltage remains constant
e. the secondary voltage remain constant
- 2095 An ideal transformer will have maximum efficiency at a load such that_____.
- a. copper loss = iron loss
b. copper loss < iron loss
c. copper loss > iron loss
d. none of the above
- 2096 If the supply frequency to the transformer is increased, the iron loss will_____.
- a. not change
b. decrease
c. increase
d. any of the above
- 2097 Negative voltage regulation is indicative that the load if _____.
- a. capacitive only
b. inductive only
c. inductive or resistive
d. none of the above
- 2098 Iron loss of a transformer can be measured by_____.
- a. low power factor wattmeter
b. unity power factor wattmeter
c. frequency meter
d. any type of wattmeter
- 2099 When secondary of a current transformer is open-circuited its iron core will be_____.
- a. hot because of heavy iron losses taking place in it due to high flux density
b. hot because primary will carry heavy current
c. cool as there is no secondary current
d. none of above will happen
- 2100 The transformer laminations are insulated from each other by_____.
- a. mica strip
b. thin coat of varnish
c. paper
d. any of the above
- 2101 Which type of winding is used in 3-phase shell-type transformer?
- a. Circular type
b. Sandwich type
c. Cylindrical type
d. Rectangular type
- 2102 During open circuit test of a transformer_____.
- a. primary is supplied rated voltage
b. primary is supplied full load current
c. primary is supplied current at reduced voltage
d. primary is supplied rated kVA
- 2103 Open circuit test on transformers is conducted to determine_____.
- a. hysteresis losses
b. copper losses
c. core losses
d. eddy current losses
- 2104 Short circuit test on transformers is conducted to determine_____.
- a. hysteresis losses
b. copper losses
c. core losses
d. eddy current losses

- 2105 For the parallel operation of single-phase transformers it is necessary that they should have _____.
- same efficiency
 - same polarity
 - same kVA rating
 - same number of turns on the secondary side
- 2106 The transformer oil should have _____ volatility and _____ viscosity.
- low, low
 - high, high
 - low, high
 - high, low
- 2107 The function of breather in a transformer is _____.
- to provide oxygen inside the tank
 - to cool the coils during reduced load
 - to cool the transformer oil
 - to arrest flow of moisture when outside air enters the transformer
- 2108 The secondary winding of which of the following transformers is always kept closed?
- Step-up transformer
 - Step-down transformer
 - Potential transformer
 - Current transformer
- 2109 The size of a transformer core will depend on _____.
- frequency
 - area of the core
 - flux density of the core material
 - both (a) and (b)
- 2110 Natural air cooling is generally restricted for transformers up to _____.
- 1.5 MVA
 - 5 MVA
 - 15 MVA
 - 50 MVA
- 2111 A shell-type transformer has _____.
- high eddy current losses
 - reduced magnetic leakage
 - negligibly hysteresis losses
 - none of the above
- 2112 A transformer can have regulation closer to zero _____.
- on full-load
 - on overload
 - on leading power factor
 - on zero power factor
- 2113 A transformer transforms _____.
- voltage
 - current
 - current and voltage
 - power
- 2114 Which of the following is not the standard voltage for power supply in India?
- 11 kV
 - 33 kV
 - 66 kV
 - 122 kV
- 2115 Reduction in core losses and increase in permeability are obtained with transformer employing _____.
- core built-up of laminations of cold rolled grain oriented steel
 - core built-up of laminations of hot rolled sheet
 - either of the above
 - none of the above
- 2116 In a power or distribution transformer about 10 per cent end turns are heavily insulated _____.
- to withstand the high voltage drop due to line surge produced by the shunting capacitance of the end turns
 - to absorb the line surge voltage and save the winding of transformer from damage
 - to reflect the line surge and save the winding of a transformer from damage
 - none of the above

- 2117 For given applied voltage, with the increase in frequency of the applied voltage_____.
- eddy current loss will decrease
 - eddy current loss will increase
 - eddy current loss will remain unchanged
 - none of the above
- 2118 Losses which occur in rotating electric machines and do not occur in transformers are_____.
- friction and windage losses
 - magnetic losses
 - hysteresis and eddy current losses
 - copper losses
- 2119 In a given transformer for a given applied voltage, losses which remain constant irrespective of load changes are_____.
- hysteresis and eddy current losses
 - friction and windage losses
 - copper losses
 - none of the above
- 2120 Which of the following statements regarding an ideal single-phase transformer having a turn ratio of 1 : 2 and drawing a crux cut of 10 A front 200 V supply is incorrect?
- Its secondary current is 5 A
 - Its secondary voltage is 400 V
 - Its rating is 2 kVA
 - Its secondary current is 20 A
 - It is a step-up transformer
- 2121 The secondary of a current transformer is always short-circuited under operating conditions because it_____.
- avoids core saturation and high voltage induction
 - is safe to human beings
 - protects the primary circuit
 - none of the above
- 2122 In a transformer the resistance between its primary and secondary should be_____.
- zero
 - 10 Ω
 - 1000 Ω
 - infinity
- 2123 A good voltage regulation of a transformer means_____.
- output voltage fluctuation from no load to full load is least
 - output voltage fluctuation with power factor is least
 - difference between primary and secondary voltage is least
 - difference between primary and secondary voltage is maximum
- 2124 For a transformer, operating at constant load current, maximum efficiency will occur at_____.
- 0.8 leading power factor
 - 0.8 lagging power factor
 - zero power factor
 - unity power factor
- 2125 Which of the following protection is normally not provided on small distribution transformers?
- Over fluxing protection
 - Buchholz relay
 - Over current protection
 - All of the above
- 2126 Which of the following acts as a protection against high voltage surges due to lightning and switching?
- Horn gaps
 - Thermal overload relays
 - Breathed
 - Conservator
- 2127 The efficiency of two identical transformers under load conditions can be determined by_____.
- short-circuit test
 - back-to-back test
 - open circuit test
 - any of the above
- 2128 Which of the following insulating materials can withstand the highest temperature safely?
- Cellulose
 - Asbestos

- c. Mica
d. Glass fibre
- 2129 Which of the following parts of a transformer is visible from outside?
a. Bushings
b. Core
c. Primary winding
d. Secondary winding
- 2130 The noise produced by a transformer is termed as_____.
a. zoom
b. hum
c. ringing
d. buzz
- 2131 Which of the following is the most likely source of harmonics in a transformer?
a. Poor insulation
b. Overload
c. Loose connections
d. Core saturation
- 2132 If a transformer is continuously operated the maximum temperature rise will occur in_____.
a. core
b. windings
c. tank
d. any of the above
- 2133 The hum in a transformer is mainly attributed to_____.
a. load changes
b. oil in the transformer
c. magnetostriction
d. mechanical vibrations
- 2134 The efficiency of a transformer, under heavy loads, is comparatively low because_____.
a. Copper loss becomes high in proportion to the output
b. iron loss is increased considerably
c. voltage drop both in primary and secondary becomes large
d. secondary output is much less as compared to primary input
- 2135 An open-circuit test on a transformer is conducted primarily to measure_____.
a. efficiency
b. copper loss
c. core loss
d. total loss
e. none of the above
- 2136 A no-load test is performed on a transformer to determine_____.
a. core loss
b. copper loss
c. efficiency
d. magnetizing current
e. magnetizing current and loss
- 2137 The voltage transformation ratio of a transformer is equal to the ratio of_____.
a. primary turns to secondary turns
b. secondary current to primary current
c. secondary induced e.m.f. to primary induced e.m.f.
d. secondary terminal voltage to primary applied voltage
- 2138 Part of the transformer which is most subject to damage from overheating is_____.
a. iron core
b. copper winding
c. winding insulation
d. frame or case
e. transformer tank
- 2139 If a transformer is switched on to a voltage more than the rated voltage
a. its power factor will deteriorate
b. its power factor will increase
c. its power factor will remain unaffected
d. its power factor will be zero
- 2140 Auto-transformer makes effective saving on copper and copper losses, when its transformation ratio is_____.
a. approximately equal to one
b. less than one
c. greater than one
d. none of the above

- 2141 Minimum voltage regulation occurs when the power factor of the load is
- unity
 - lagging
 - leading
 - zero
- 2142 In a step-down transformer, there is a change of 15 A in the load current. This results in change of supply current of_____.
- less than 15 A
 - more than 15 A
 - 5A
 - none of the above
- 2143 The efficiencies of transformers compared with that of electric motors of the same power are_____.
- about the same
 - much smaller
 - much higher
 - somewhat smaller
 - none of the above
- 2144 The short-circuit voltage of former mainly depends on the_____.
- magnitude of leakage flux
 - ohmic resistance of primary winding
 - ohmic resistance of secondary winding
 - cross-sectional area of the iron core
- 2145 In a transformer, electric power is transferred from one coil to the other coil in a transformer_____.
- magnetically
 - electromagnetically
 - physically
 - electrically
- 2146 In an ideal transformer, on no-load, the primary voltage is balanced by_____.
- the primary induced e.m.f.
 - the secondary induced e.m.f.
 - the secondary voltage
 - the drop across resistances and reactance
- 2147 As per the name plate of a transformer, the secondary normal voltage is 220 V. Which of the following statements about it is correct?
- 220 V is the no-load voltage
 - The no-load voltage is more than 220 V
 - The secondary voltage increases with increasing load
 - At a load which draws the rated current the voltage becomes less than 220 V
- 2148 A transformer is working at its maximum efficiency. Its iron loss is 1 kW. Their copper losses will be_____.
- 0.2 kW
 - 0.25 kW
 - 0.5 kW
 - 1 kW
- 2149 A transformer is working at its full load and its efficiency is also maximum. Its iron loss is 1 kW, its copper loss at half load will be_____.
- 0.1 kW
 - 0.2 kW
 - 0.25 kW
 - 0.5 kW
- 2150 In some transformers, the tapings are provided on_____.
- L.V. side
 - H.V. side
 - L.V. as well as on H.V. side
 - in the middle of both windings
- 2151 In case of transformers using cold rolled grain oriented steel, the area of yoke is taken_____.
- equal to that of core
 - as 10-15% larger than that of core
 - as 15-20% larger than that of core
 - as 20-25% larger than that of core
 - none of the above
- 2152 The distribution transformers are designed to keep the iron-losses minimum because_____.

- a. the primary of distribution transformer is energized for all the twenty four hours
 b. iron losses may damage the insulation
 c. iron-losses will heat up the coil
 d. none of the above
- 2153 Which of the following materials is suitable for the manufacture of transformer and large turbo-alternator?
 a. Cast iron
 b. Cast steel
 c. Cold rolled grain oriented steel
 d. Hot rolled grain oriented steel
- 2154 A transformer is used to change the value of _____.
 a. power factor
 b. power
 c. frequency
 d. voltage
- 2155 Which of the following statements incorrect?
 a. A transformer operates at power factor below a particular value
 b. A transformer operates always at unity power factor
 c. A transformer operates at a power factor depending on the power factor of the load
 d. A transformer has its own power factor
- 2156 A transformer, as compared to an amplifier, cannot increase _____.
 a. the output current
 b. the output voltage
 c. the output power
 d. none of the above
- 2157 A transformer having a turn ratio 1 : 5 and a resistance of 1000Ω is connected across the secondary terminals, the resistance offered to a current flowing in the primary will be _____.
 a. 10Ω
 b. 20Ω
 c. 40Ω
 d. 60Ω
- 2158 Which of the following statements about a transformer having a small short-circuit voltage is true?
 a. A low short-circuit current flows through the transformer
 b. A high short-circuit current flows through the transformer
 c. The transformer has high iron losses during the operation
 d. The transformer has a small transformation ratio
 e. The transformer has high copper losses during the operation
- 2159 Helical coils are very well suited for _____.
 a. low voltage winding of large rating transformers
 b. high voltage winding of small rating transformers
 c. high voltage winding of large rating transformers
 d. none of the above
- 2160 In a power transformer the efficiency should be maximum at _____.
 a. 50% of full load
 b. 60% full load
 c. 80% full load
 d. full load
- 2161 For minimum weight of a transformer, the weight of iron should be unity power factor _____.
 a. equal to the weight of copper
 b. less than weight of copper
 c. greater than Weight of copper
 d. zero
- 2162 The iron losses of a transformer can be calculated by knowing the weights of _____.
 a. copper winding only
 b. yokes only
 c. cores only
 d. cores and yokes

- 2163 H.R.C. fuses on a transformer provide protection against_____.
- insulation failure
 - internal faults
 - external faults
 - low oil level
- 2164 Which of the following insulating materials is used in power transformers?
- Tape of glass
 - Synthetic resin bonded paper
 - Press board
 - All of the above
- 2165 Simple porcelain bushings are used for transformers up to_____.
- 11 kV
 - 132 kV
 - 400 kV
 - none of the above
- 2166 Harmonic currents in a transformer cause_____.
- increased core loss
 - increased I²R loss
 - magnetic interference with protective relays
 - all of the above
- 2167 If a transformer core is made of copper and coils are made up of steel wire, then_____.
- eddy current losses will be less
 - copper losses in the winding will be more
 - magnetizing current will be reduced
 - all of the above
- 2168 Oil impregnated paper condenser bushing is generally used on transformers operating at_____.
- 132 kV
 - 66 kV
 - 33 kV
 - 11 kV
- 2169 The colour of fresh dielectric oil for a transformer is_____.
- dark broom
 - white to grey
 - pale yellow
 - colourless
- 2170 Which of the following test on a transformer provides information about regulation, efficiency and heating under load conditions?
- Back to back test
 - Short circuit test
 - Swinburne's test
 - Open circuit test
- 2171 Buchholz's relay is used on
- welding transformers
 - air-cooled transformers
 - furnace transformers
 - oil cooled transformers
- 2172 In Scott connections the main transformer has centre tap on_____.
- primary winding
 - secondary windings
 - both primary and secondary winding
 - none of the above
- 2173 In a transformer over currents affect_____.
- mechanical stress
 - temperature rise
 - insulation life
 - all of the above
- 2174 For transformers up to a capacity of_____kVA air blast cooling is provided.
- 2500
 - 5000
 - 10000
 - 20000
- 2175 As the supply frequency of a transformer increases its rating_____.
- increases
 - decreases
 - remains unchanged
 - none of the above
- 2176 Which of the following methods is used for cooling of transformers upto a capacity of 10 MVA ?