

- a. Air blast cooling
b. Forced oil cooling
c. Oil natural cooling
d. None of the above
- 2177 The nominal short-circuit voltage of the transformer is defined as percentage of _____.
a. the rated primary voltage
b. the rated secondary voltage
c. the test voltage
d. the nominal transformation ratio
e. none of the above
- 2178 In a transformer frictional loss is _____.
a. 5% of total loss
b. 10% of total loss
c. 20% of total loss
d. nil
- 2179 A distribution transformer has low flux density because _____.
a. it is constantly connected to the supply
b. it is required to give better power factor
c. it is normally a small transformer
d. iron is quite cheap
- 2180 Spiral core transformer which has core made up of steel strip has the following advantage.
a. Less weight
b. Lighter construction
c. Minimum losses
d. All above
- 2181 The place of transformer installation is selected such that _____.
a. location is not too warm
b. plenty of dry and clean air is available and wet conditions are not encountered
c. location is not subject to damage from men and material traffic
d. all above requirements are met with
- 2182 A transformer designed for installation in a tropical country if installed in a cold country _____.
a. is to be loaded below the name plate kVA rating
b. can be loaded in excess of the name plate kVA rating
c. either of the above
d. neither of the above
- 2183 Most widely used insulating and cooling transformer liquid is _____.
a. mineral oil
b. water
c. askarel
d. none of the above
- 2184 A current transformer is _____.
a. a magnetic component to change voltage level
b. an instrument to transform A.C. current to D.C. current
c. a magnetic component to change current level
d. none of the above
- 2185 Buchholz's relay is used in _____.
a. motor protection
b. line protection
c. generator protection
d. transformer protection
- 2186 Buchholz's relay gives warning and protection against _____.
a. electrical fault inside the transformer itself
b. electrical fault outside the transformer in outgoing feeder
c. either of the above
d. none of the above
- 2187 For power purpose sine wave shape is preferred because _____.
a. it gives least copper losses
b. it is easy to generate e.m.f. of this wave shape
c. it is stable wave shape as the line parameters cannot change it
d. none of the above
- 2188 A sinusoidal e.m.f. _____.
a. leads the flux inducing it by 180°
b. leads the flux inducing it by 90°
c. lags the flux inducing it by 180°

- d. lags the flux inducing it by 90°
- 2189 The humming sound in a transformer is mainly due to
- magnetostriction
 - walls of the tank
 - oil of the transformer
 - laminations of the transformer
- 2190 The advantage of putting tappings at the phase ends of a transformer is_____.
- to reduce the number of bushings
 - to obtain better regulation
 - to obtain fine variation of voltage
 - to operate with ease
- 2191 In a three-phase delta transformer, one of the phases burns up. The transformer will supply_____.
- zero output
 - 20 percent of its output rating
 - 40 percent of its output rating
 - its full output rating
 - none of the above
- 2192 When a 440/220 V transformer is connected to 400 V D.C. Supply,_____.
- The transformer may burn
 - the output will be zero volt
 - the output will be 220 V
 - the output will be less than 230 V
- 2193 In high frequency transformer ferrite cores are used because a ferrite core has_____.
- low resistance
 - high resistance
 - low permeability
 - high hysteresis
- 2194 Which of the following transformers is smallest ?
- 2 kVA, 500 Hz
 - 2 kVA, 400 Hz
 - 2 kVA, 200 Hz
 - 2kVA, 50 Hz
- 2195 The purpose of a breather in a transformer is to_____.
- provide cooling to the winding
 - take insulating oil from the conservator
 - provide insulation to the winding
 - extract moisture from the air
- 2196 Cross-over windings are used for_____.
- high voltage winding of large rating transformers
 - high voltage winding of small rating transformers
 - low voltage winding of small rating transformers
 - none of these
- 2197 In core-type transformers, the concentric windings are used with_____.
- low voltage winding placed next to core
 - low voltage winding on the outer side
 - high voltage winding placed next to core
 - high voltage winding on the outer side
- 2198 The yoke sections of transformers using hot rolled laminations are made 15 per cent greater than that of the core so as to_____.
- increase the size of the transformers
 - to reduce the copper loss
 - to reduce the iron loss in yoke and magnetizing current
 - to provide better cooling
- 2199 When two single phase transformers are running in parallel and if the impedance triangles of the transformers are not identical in shape and size the then_____.
- power factor of one transformer and power factor of common load will be same
 - power factors at which the transformers operate will be different from one another and again these will be different from power factor of common load

- c. power factors at which the transformers operate will be same but different from power factor of common load
- d. power factors at which the transformers operate and power factor of common load-all will be same
- 2200 What is the typical use of an auto transformer?
- Control transformer
 - Isolating transformer
 - Variable transformer
 - Toy transformer
- 2201 In a transformer the magnitude of mutual flux_____.
- varies at low loads and constant at high loads
 - is low at low loads and high at high loads
 - is high at low loads and low at high loads
 - same at all loads
- 2202 The principle of working of a transformer is _____.
- mutual induction
 - static induction
 - self induction
 - dynamic induction
- 2203 Which of the following is not a fitting of a transformer?
- Commutator
 - Breather
 - Conservator
 - Buchholz's relay
- 2204 In a transformer an insulating material may fail due to _____.
- moisture
 - dust
 - voids in the winding
 - any of the above
- 2205 The reactance of a transformer depends on_____.
- leakages flux
 - size of the core
 - size of the tank
 - all of the above
- 2206 Which of the following parts of a transformer is likely to suffer maximum damage due to excessive temperature rise?
- Winding insulation
 - Copper winding
 - Core laminations
 - dielectric strength of oil
- 2207 In a transformer on no-load, the input voltage_____.
- is always at 60° to the magnetizing current
 - is in phase with magnetizing current
 - leads the magnetizing current by 90°
 - lags the magnetizing current by 90°
- 2208 The value of useful flux least depends on_____.
- load
 - magneto-motive force
 - voltage
 - all of the above
- 2209 In which of the following transformer part of primary winding also serves as the secondary winding?
- Potential transformer
 - Auto transformer
 - Step-up transformer
 - Current transformer
- 2210 Which of the following can be reduced when the flux density in the transformer core is increased?
- Copper losses
 - Output frequency
 - Size of the transformer
 - None of the above
- 2211 Burden of a current transformer is usually expressed in_____.
- amperes
 - volts
 - volt amperes
 - kilowatt
- 2212 Transformer rating is usually expressed in terms of_____.

- a. kVA
b. kW
c. kWh
d. kVAR
- 2213 A tap changer is used on a transformer for_____.
- a. adjustments in secondary voltage
b. adjustments in primary voltage
c. adjustments in both primary and secondary voltages
d. none of the above
- 2214 Which of the following will improve the mutual coupling between primary and secondary circuits?
- a. High reluctance magnetic core
b. Transformer oil of high breakdown voltage
c. Low reluctance magnetic core
d. Winding material of high resistivity
- 2215 Leakage fluxes of a transformer may be minimized by_____.
- a. avoiding overloads
b. keeping magnetizing current to the minimum
c. reducing the reluctance of the iron core to the minimum
d. sectionalizing and interleaving the primary and secondary windings
e. minimizing the number of turns both on primary and secondary
- 2216 The magnetizing current, for sinusoidal voltage applied will be_____.
- a. always sinusoidal
b. always non-sinusoidal
c. sinusoidal or non-sinusoidal depending upon the saturation point
d. none of the above
- 2217 A step-up transformer increases_____.
- a. power
b. current
c. voltage
d. frequency
- 2218 Transformer cores are built-up from laminations rather than from solid metal so that_____.
- a. less insulation is required for the windings
b. oil penetrates the core more easily
c. turn ratio is higher than voltage ratio
d. eddy current loss is reduced
- 2219 The transformation ratio of a transformer, for a given application_____.
- a. depends on secondary load
b. is constant but not fixed
c. is fixed but not constant
d. none of the above
- 2220 The output current corresponding to the maximum efficiency for a transformer having core loss of 200 W and equivalent resistance referred to secondary of 0.5Ω is_____.
- a. 5 A
b. 10.A
c. 15 A
d. 20A
- 2221 The rating of a transformer is given in kVA instead of kW because_____.
- a. kVA is fixed whereas kW depends on load p.f.
b. load power factor is often not known
c. it has become customary
d. total transformer loss depends on VA
- 2222 For parallel operation of two single phase transformers the essential condition is that they should have the same_____.
- a. voltage ratio
b. percentage impedance
c. polarity
d. phase sequence
- 2223 The saving in copper achieved by converting two winding transformer

- into an autotransformer is determined by_____.
- load on the secondary
 - voltage transformation ratio
 - size of the transformer core
 - magnetic quality of core material
 - none of the above
- 2224 The type of load for which the voltage regulation of a transformer is negative is_____.
- capacitive
 - inductive
 - resistive
 - none of the above
- 2225 While performing a short-circuit test on a transformer, usually low voltage side is short circuited because it has_____.
- low insulation
 - easy access
 - lower terminal voltage and higher current rating
 - more number of turns
- 2226 The secondary winding of a current transformer whose primary is carrying current should_____.
- not be open-circuited
 - not be short-circuited
 - either of the above
 - none of the above
- 2227 In large transformers, oil is invariably used in order to_____.
- lubricate the core
 - insulate the core
 - insulate the coils
 - none of the above
- 2228 Dust should never be allowed to accumulate on the windings and core of a dry type transformer because it_____.
- reduces dissipation of heat
 - may short-circuit the windings
 - absorbs oil and grease
 - tends to corrode the metal surface
- 2229 Increase in secondary current of a transformer brings about increase in primary current. This is possible because_____.
- primary and secondary windings are capacitively coupled
 - primary and secondary windings are inductively coupled
 - primary and secondary windings are conductively coupled
 - none of the above
- 2230 An auto-transformer is preferred to a conventional 2-winding transformer,_____.
- where ratio of transformation is low
 - where it is required to isolate the two windings electrically
 - because it is much safer to use an auto-transformer
 - where large number of secondary taps are needed
- 2231 Transformer for constant voltage applications is considered good if its voltage regulation is_____.
- low
 - high
 - zero
 - none of the above
- 2232 Transformer supplying load having negative resistance characteristics such as arc load, is considered if its voltage regulation is_____.
- low
 - high
 - either of the above
 - none of the above
- 2233 For given effective applied voltage of constant frequency eddy current losses_____.
- become less with peaked wave shape of applied voltage
 - are independent of the wave shape of the applied voltage
 - either of the above
 - none of the above
- 2234 While rising and while falling, if a wave is symmetrical, it contains_____.

- a. even harmonics in addition to fundamental
 b. odd harmonics in addition to fundamental
 c. both odd and even harmonics in addition to fundamental
 d. none of the above
- 2235 While rising and falling if a wave is not symmetrical, it contains_____.
- a. even harmonics in addition to fundamental
 b. odd harmonics in addition to fundamental
 c. both odd and even harmonics in addition to fundamental
 d. none of the above
- 2236 In order to find the full-load efficiency of a transformer, the losses this is to be known_____.
- a. may be found by performing open-circuit and short-circuit tests
 b. may be found by measuring winding resistances and calculating the I²R losses
 c. may be found by measuring the input to the primary with secondary open
 d. cannot be found except by actually loading the transformer fully
- 2237 Which of the following statement concerning parallel operation of transformers is incorrect?
- a. Transformers must be operated at the same frequency
 b. Transformers must have same transformation ratio
 c. Transformers must have equal kVA
 d. Transformers must have equal voltage ratings
- 2238 Current transformers for meters and relays usually have_____.
- a. 1 : 2 ratio
 b. 5 : 1 ratio
 c. 5-A secondary
 d. 15-A secondary
- 2239 All day efficiency is the ratio of output to input in_____.
- a. kVA at a particular instant
 b. kW at particular instant
 c. kVARh at particular instant
 d. kWh during 24 hours
- 2240 While performing back-to back test, the amount of power consumed is equal to_____.
- a. iron and copper losses of two transformers at full load
 b. full load rated output of the two transformers
 c. rated output of two transformers and iron and copper losses of transformers at full load
 d. none of the above
- 2241 The purpose of performing Sumpner's test is mainly to find out_____.
- a. regulation of the transformer
 b. efficiency of the transformer
 c. the temperature rise on full load economically
 d. none of the above
- 2242 When 240 V supply is given to an unloaded 220 V, 50 Hz transformer_____.
- a. secondary will carry heavy current
 b. primary will carry heavy current and may possibly burn
 c. we will get voltage on secondary side according to turn ratio
 d. we will get high voltage on secondary side
- 2243 In a transformer the magnitude of magnetizing current is more_____.
- a. its power factor will become low on leading side
 b. its power factor will become low on lagging side
 c. it has no effect on the power factor of the transformer
 d. none of the above

- 2244 In measuring voltage or current by means of instrument transformer _____.
- only ratio errors need be considered
 - both ratio as well as phase angle error need to be considered
 - either of the above
 - none of the above
- 2245 In which of the following the highest rating transformer is likely to find application?
- Transmission
 - Substation
 - Generator
 - Distribution
- 2246 In a transformer maximum voltage regulation occurs when the power factor of the load is _____.
- 0.4
 - lagging
 - leading
 - unity
- 2247 In a transformer minimum voltage regulation occurs when the power factor of the load is _____.
- leading
 - lagging
 - 0.8
 - unity
- 2248 When a delta connected primary of a 3-phase transformer is connected to 3-phase supply _____.
- magnetizing current in phase winding will carry third harmonics but line current will be free from it
 - magnetizing current in phase winding will contain third harmonic and line current will also contain third harmonics
 - magnetizing current in phase winding will not contain third harmonics but line current will contain third harmonics
 - none of the above
- 2249 Scott connections are used to convert _____.
- three-phase supply to supply
 - three-phase supply to three-phase supply
 - three-phase supply to two-phase supply
 - three-phase supply to single-phase supply
- 2250 The function of an instrument transformer is to _____.
- act as an isolating device to protect equipment and operation personnel from high voltages
 - act as a radio device to enable the use of standardized low range instruments
 - discharge both of the above functions
 - discharge none of the above functions
- 2251 Which of the following 3-phase connections of transformer create disturbances in communication systems?
- star/delta
 - delta/star
 - star/star
 - delta/delta
- 2252 Delta-delta power transformer is protected by current transformer having _____.
- star/star connections
 - delta/delta connections
 - star/delta connections
 - delta/star connections
- 2253 Star-star power transformer is protected by current transformer having _____.
- star/star connections
 - delta/delta connections
 - star/delta connections
 - delta/star connections
- 2254 Which of the following component is usually fabricated out of silicon steel?
- Springs
 - Shaft

- c. Stator core
d. None of the above
- 2255 The frame of an induction motor is usually made of_____.
- a. silicon steel
b. cast iron
c. aluminium
d. bronze
- 2256 The shaft of an induction motor is made of_____.
- a. stiff
b. flexible
c. hollow
d. any of the above
- 2257 The shaft of an induction motor is made of_____.
- a. high speed steel
b. stainless steel
c. carbon steel
d. cast iron
- 2258 In an induction motor, no-load the slip is generally_____.
- a. less than 1%
b. 1.50%
c. 2%
d. 4%
- 2259 In medium sized induction motors, the slip is generally around_____.
- a. 0.04%
b. 0.40%
c. 4%
d. 14%
- 2260 In squirrel cage induction motors, the rotor slots are usually given slight skew in order to_____.
- a. reduce windage losses
b. reduce eddy currents
c. reduce accumulation of dirt and dust
d. reduce magnetic hum
- 2261 In case the air gap in an induction motor is increased_____.
- a. the magnetizing current of the motor will decrease
b. the power factor will decrease
c. speed of motor will increase
d. the windage losses will increase
- 2262 Slip rings are usually made of
- a. copper
b. carbon
c. phosphor bronze
d. aluminium
- 2263 A 3-phase 440 V, 50 Hz induction motor has 4% slip. The frequencies of rotor e.m.f. will be_____.
- a. 200 Hz
b. 50 Hz
c. 2 Hz
d. 0.2 Hz
- 2264 In N_s is the synchronous speed and s the slip, then actual running speed of an induction motor will be_____.
- a. N_s
b. $s.N_s$
c. $(1 - s)N_s$
d. $(N_s - I).s$
- 2265 The efficiency of an induction motor can be expected to be nearly_____.
- a. 60 to 90%
b. 80 to 90%
c. 95 to 98%
d. 99%
- 2266 The number of slip rings on a squirrel cage induction motor is usually_____.
- a. two
b. three
c. four
d. none
- 2267 The starting torque of a squirrel-cage induction motor is_____.
- a. low
b. negligible
c. same as full-load torque
d. slightly more than full-load torque
- 2268 A double squirrel-cage induction motor has_____.

- a. two rotors moving in opposite direction
 b. two parallel windings in stator
 c. two parallel windings in rotor
 d. two series windings in stator
- 2269 Star-delta starting of motors is not possible in case of_____.
- a. single phase motors
 b. variable speed motors
 c. low horse power motors
 d. high speed motors
- 2270 The term 'cogging' is associated with_____.
- a. three phase transformers
 b. compound generators
 c. series motors
 d. induction motors
- 2271 In case of the induction motors the torque is_____.
- a. inversely proportional to (v_{slip})
 b. directly proportional to $(slip)^2$
 c. inversely proportional to slip
 d. directly proportional to slip
- 2272 An induction motor with 1000 r.p.m. speed will have_____.
- a. 8 poles
 b. 6 poles
 c. 4 poles
 d. 2 poles
- 2273 The good power factor of an induction motor can be achieved if the average flux density in the air gap is_____.
- a. absent
 b. small
 c. large
 d. infinity
- 2274 The mechanical load across the induction motor is equivalent to electrical load of_____.
- a. $R_2^2 (1/s-1)$
 b. $R_2 (1/s-1)$
 c. $R_2^2 (s-1)$
 d. $1/R_2 (s-1)$
- 2275 The injected e.m.f. in the rotor of induction motor must have_____.
- a. zero frequency
 b. the same frequency as the slip frequency
 c. the same phase as the rotor e.m.f.
 d. high value for the satisfactory speed control
- 2276 Which of the following methods is easily applicable to control the speed of the squirrel-cage induction motor ?
- a. By changing the number of stator poles
 b. Rotor rheostat control
 c. By operating two motors in cascade
 d. By injecting e.m.f. in the rotor circuit
- 2277 The crawling in the induction motor is caused by_____.
- a. low voltage supply
 b. high loads
 c. harmonic developed in the motor
 d. improper design of the machine
 e. none of the above
- 2278 The auto-starters, (using three auto transformers) can be used to start cage induction motor of which the following type?
- a. star connected only
 b. delta connected only
 c. both (a) and (b)
 d. none of the above
- 2279 The torque developed in the cage induction motor with auto starter is
- a. K / torque with direct switching
 b. $K \times \text{torque}$ with direct switching
 c. $K^2 \times \text{torque}$ with direct switching
 d. K^2 / torque with direct switching
- 2280 When the equivalent circuit diagram of double squirrel-cage induction motor is constructed the two cages can be considered_____.
- a. in series
 b. in parallel
 c. in series and parallel
 d. in parallel with stator

- 2281 It is advisable to avoid line-starting of induction motor and use starter because_____.
- motor takes five to seven times its full load current
 - it will pick-up very high speed and may go out of step
 - it will run in reverse direction
 - starting torque is very high
- 2282 Step less speed control of induction motor is possible by which of the following methods?
- e.m.f. injection in rotor circuit
 - changing the number of poles
 - cascade operation
 - None of the above
- 2283 Rotor rheostat control method of speed control is used for_____.
- squirrel-cage induction motors only
 - slip ring induction motors only
 - both (a) and (b)
 - none of the above
- 2284 In the circle diagram for induction motor, the diameter of the circle represents
- slip
 - rotor current
 - running torque
 - line voltage
- 2285 For which motor the speed can be controlled from rotor side?
- squirrel-cage induction motor
 - slip ring induction motor
 - both (a) and (b)
 - None of the above
- 2286 If any two phases for an induction motor are interchanged_____.
- the motor will run in reverse direction
 - the motor will run at reduced speed
 - the motor will not run
 - the motor will burn
- 2287 An induction motor is_____.
- self-starting with zero torque
 - self-starting with high torque
 - self-starting with low torque
 - non-self starting
- 2288 The maximum torque in an induction motor depends on_____.
- frequency
 - rotor inductive reactance
 - square of supply voltage
 - all of the above
- 2289 In three-phase squirrel-cage induction motors_____.
- rotor conductor ends are short-circuited through slip rings
 - rotor conductors are short-circuited through end rings
 - rotor conductors are kept open
 - rotor conductors are connected to insulation
- 2290 In a three-phase induction motor, the number of poles in the rotor winding is always_____.
- zero
 - more than the number of poles in stator
 - less than number of poles in stator
 - equal to number of poles in stator
- 2291 DOL starting of induction motors is usually restricted to
- low horse power motors
 - variable speed motors
 - high horse power motors
 - high speed motors
- 2292 The speed of a squirrel cage induction motor can be controlled by all of the following except_____.
- changing supply frequency
 - changing number of poles
 - changing winding resistance
 - reducing supply voltage
- 2293 The 'crawling' in an induction motor is caused by_____.
- high loads
 - low voltage supply
 - improper design of machine
 - harmonics developed in the motor

- 2294 The power factor of an induction motor under no-load conditions will be closer to _____.
- 0.2 lagging
 - 0.2 leading
 - 0.5 leading
 - unity
- 2295 The 'cogging' of an induction motor can be avoided by _____.
- proper ventilation
 - using DOL starter
 - auto-transformer starter
 - having number of rotor slots more or less than the number of stator slots (not equal)
- 2296 If an induction motor with certain ratio of rotor to stator slots, run at $1/7^{\text{th}}$ of the normal speed, the phenomenon is termed as _____.
- humming
 - hunting
 - crawling
 - cogging
- 2297 Slip of an induction motor is negative when _____.
- magnetic field and rotor rotate in opposite direction
 - rotor speed is less than the synchronous speed of the field and are in the same direction
 - rotor speed is more than the synchronous speed of the field and are in the same direction
 - none of the above
- 2298 Size of a high speed motor as compared to low speed motor for the same H.P. will be _____.
- bigger
 - smaller
 - same
 - any of the above
- 2299 A 3-phase induction motor stator delta connected, is carrying full load and one of its fuses blows out. Then the motor _____.
- will continue running burning its one phase
 - will continue running burning its two phases
 - will stop and carry heavy current causing permanent damage to its winding
 - will continue running without any harm to the winding
- 2300 Low voltage at motor terminals is due to _____.
- inadequate motor wiring
 - poorly regulated power supply
 - any one of the above
 - none of the above
- 2301 In an induction motor the relationship between stator slots and rotor slots is that _____.
- stator slots are equal to rotor slots
 - stator slots are exact multiple of rotor slots
 - stator slots are not exact multiple of rotor slots
 - none of the above
- 2302 Slip ring motor is recommended where _____.
- speed control is required
 - frequent starting, stopping and reversing is required
 - high starting torque is needed
 - all above features are required
- 2303 load on an induction motor goes on increasing
- its power factor goes on decreasing
 - its power factor remains constant
 - its power factor goes on increasing even after full load
 - its power factor goes on increasing up to full load and then it falls again
- 2304 If a 3-phase supply is given to the stator and rotor is short circuited rotor will move _____.
- in the opposite direction as the direction of the rotating field
 - in the same direction as the direction of the field

- c. in any direction depending upon phase sequence of supply
- 2305 It is advisable to avoid line starting of induction motor and use starter because_____.
- it will run in reverse direction
 - it will pick up very high speed and may go out of step
 - motor takes five to seven times its full-load current
 - starting torque is very high
- 2306 The speed characteristics of an induction motor closely resemble the speed-load characteristics of which of the following machines_____.
- series motor
 - shunt motor
 - universal motor
 - none of the above
- 2307 Which type of bearing is provided in small induction motors to support the rotor shaft?
- Ball bearings
 - Cast iron bearings
 - Bush bearings
 - None of the above
- 2308 A pump induction motor is switched on to a supply 30% lower than its rated voltage. The pump runs. What will eventually happen? It will_____.
- stall after sometime
 - stall immediately
 - continue to run at lower speed without damage
 - get heated and subsequently get damaged
- 2309 5 H.P., 50-Hz, 3-phase, 440 V, induction motors are available for the following r.p.m. Which motor will be the costliest?
- 730 r.p.m.
 - 960 r.p.m.
 - 1440 r.p.m.
 - 2880 r.p.m.
- 2310 A 3-phase slip ring motor has_____.
- double cage rotor
 - wound rotor
 - short-circuited rotor
 - any of the above
- 2311 The torque developed in an induction motor is nearly proportional to_____. (where V- applied voltage)
- $1/V$
 - V
 - V^2
 - $1/V^2$
- 2312 Short-circuit test on an induction motor cannot be used to determine_____.
- windage losses
 - copper losses
 - transformation ratio
 - power scale of circle diagram
- 2313 In a three-phase induction motor_____.
- iron losses in stator will be negligible as compared to that in rotor
 - iron losses in motor will be negligible as compared to that in rotor
 - iron losses in stator will be less than that in rotor
 - iron losses in stator will be more than that in rotor
- 2314 In case of 3-phase induction motors, plugging means_____.
- pulling the motor directly on line without a starter
 - locking of rotor due to harmonics
 - starting the motor on load which is more than the rated load
 - interchanging two supply phases for quick stopping
- 2315 Which of the following data is required to draw the circle diagram for an induction motor?
- Block rotor test only
 - No load test only

- c. Block rotor test and no-load test
d. Block rotor test, no-load test and stator resistance test
- 2316 In three-phase induction motors sometimes copper bars are placed deep in the rotor to_____.
- improve starting torque
 - reduce copper losses
 - improve efficiency
 - improve power factor
- 2317 In a three-phase induction motor_____.
- power factor at starting is high as compared to that while running
 - power factor at starting is low as compared to that while running
 - power factor at starting is the same as that while running
- 2318 The value of transformation ratio of an induction motor can be found by_____.
- open-circuit test only
 - short circuit test only
 - stator resistance test
 - none of the above
- 2319 The power scale of circle diagram of an induction motor can be found from_____.
- stator resistance test
 - no-load test only
 - short-circuit test only
 - none of the above
- 2320 The shape of the torque/slip curve of induction motor is_____.
- parabola
 - hyperbola
 - rectangular parabola
 - straight line
- 2321 A change of 4% of supply voltage to an induction motor will produce a change of approximately_____.
- 4% in the rotor torque
 - 8% in the rotor torque
 - 12% in the rotor torque
 - 16% in the rotor torque
- 2322 The starting torque of the slip ring induction motor can be increased by adding_____.
- external inductance to the rotor
 - external resistance to the rotor
 - external capacitance to the rotor
 - both resistance and inductance to rotor
- 2323 A 500 kW, 3-phase, 440 volts, 50 Hz, A.C. induction motor has a speed of 960 r.p.m. on full load. The machine has 6 poles. The slips of the machine will be_____.
- 1%
 - 2%
 - 3%
 - 4%
- 2324 The complete circle diagram of induction motor can be drawn with the help of data found from_____.
- no-load test
 - blocked rotor test
 - stator resistance test
 - all of the above
- 2325 In the squirrel-cage induction motor the rotor slots are usually given slight skew_____.
- to reduce the magnetic hum and locking tendency of the rotor
 - to increase the tensile strength of the rotor bars
 - to ensure easy fabrication
 - none of the above
- 2326 The torque of a rotor in an induction motor under running condition is maximum_____.
- at the unit value of slip
 - the zero value of slip

- c. at the value of the slip which makes rotor reactance per phase equal to the resistance per phase
d. at the value of the slip which makes the rotor reactance half of the rotor resistance
- 2327 What will happen if the relative speed between the rotating flux of stator and rotor of the induction motor is zero?
a. the slip of the motor will be 5%
b. The rotor will not run
c. The rotor will run at very high speed
d. The torque produced will be very large
- 2328 The circle diagram for an induction motor cannot be used to determine_____.
a. efficiency
b. power factor
c. frequency
d. output
- 2329 Blocked rotor test on induction motors is used to find out_____.
a. leakage reactance
b. power factor on short circuit
c. short-circuit current under rated voltage
d. all of the above
- 2330 Lubricant used for ball bearing is usually_____.
a. graphite
b. grease
c. mineral oil
d. molasses
- 2331 An induction motor can run at synchronous speed when_____.
a. it is run on load
b. it is run in reverse direction
c. it is run on voltage higher than the rated voltage
d. e.m.f. is injected in the rotor circuit
- 2332 Which motor is preferred for use in mines where explosive gases exist?
a. Air motor
b. Induction motor
c. shunt motor
d. Synchronous motor
- 2333 The torque developed by 3-phase induction motors least depend on_____.
a. rotor current
b. rotor power factor
c. rotor e.m.f.
d. shaft diameter
- 2334 In an induction motor if air-gap is increased,_____.
a. the power factor will be low
b. windage losses will be more
c. bearing friction will reduce
d. copper losses will reduce
- 2335 In an induction motor,_____.
a. $s = (N - N_s) / N$
b. $s = (N_s - N) / N_s$
c. $s = (N_s - N) / N$
d. $s = (N - N_s) / N_s$
- 2336 When R_2 is the rotor resistance, X_2 the rotor reactance at supply frequency and 's' the slip, the condition for maximum torque under running condition will be_____.
a. $sR_2X_2 = 1$
b. $sR_2 = X_2$
c. $R_2 = sX_2$
d. $R_2 = s^2X_2$
- 2337 In case of a double cage induction motor, the inner cage has_____.
a. high inductance and low resistance
b. low inductance and high resistance
c. low inductance and low resistance
d. high inductance and high resistance
- 2338 The low power factor of induction motor is due to_____.
a. rotor leakage reactance
b. stator reactance
c. the reactive lagging magnetizing current necessary to generate the magnetic flux
d. all of the above
- 2339 Insertion of reactance in the rotor circuit_____.
a. reduces starting torque as well as maximum torque
b. increases starting torque as well as maximum torque

- c. increases starting torque but maximum torque remains unchanged
d. increases starting torque but maximum torque decreases
- 2340 Insertion of resistance in the rotor of an induction motor to develop a given torque_____.
- a. decreases the rotor current
b. increases the rotor current
c. rotor current becomes zero
d. rotor current remains same
- 2341 For driving high inertia loads best type of induction motor suggested is_____.
- a. slip ring type
b. squirrel cage type
c. any of the above
d. none of the above
- 2342 Temperature of the stator winding of a three phase induction motor is obtained by_____.
- a. resistance rise method
b. thermometer method
c. embedded temperature method
d. all above methods
- 2343 The purpose of using short-circuits gear is_____.
- a. short circuit the rotor at slip rings
b. to short circuit the starting resistances in the starter
c. to short circuit the stator phase of motor to form star
d. none of the above
- 2344 In a squirrel cage motor the induced e.m.f. is_____.
- a. dependent on the shaft loading
b. dependent on the number of slots
c. slip times the stand still e.m.f. induced in the rotor
d. none of the above
- 2345 Less maintenance troubles are experienced in case of_____.
- a. slip ring induction motor
b. squirrel cage induction motor
c. both (a) and (b)
d. none of the above
- 2346 A squirrel cage induction motor is not selected when_____.
- a. initial cost is the main consideration
b. maintenance cost is to be kept low
c. higher starting torque is the main consideration
d. all above considerations are involved
- 2347 Reduced voltage starter can be used with_____.
- a. slip ring motor only but not with squirrel cage induction motor
b. squirrel cage induction motor only but not with slip ring motor
c. squirrel cage as well as slip ring induction motor
d. none of the above
- 2348 Slip ring motor is preferred over squirrel cage induction motor where_____.
- a. high starting torque is required
b. load torque is heavy
c. heavy pull out torque is required
d. all of the above
- 2349 In a star-delta starter of an induction motor_____.
- a. resistance is inserted in the stator
b. reduced voltage is applied to the stator
c. resistance is inserted in the rotor circuit
d. applied voltage per stator phase is 57.7% of the line voltage
- 2350 The torque of an induction motor is_____.
- a. directly proportional to slip
b. inversely proportional to slip
c. proportional to the square of the slip
d. none of the above
- 2351 The rotor of an induction motor runs at_____.
- a. synchronous speed
b. below synchronous speed
c. above synchronous speed
d. any of the above

- 2352 The starting torque of a three phase induction motor can be increased by_____.
- increasing slip
 - increasing current
 - both (a) and (b)
 - none of the above
- 2353 Insertion of resistance in the stator of an induction motor_____.
- increases the load torque
 - decreases the starting torque
 - increases the starting torque
 - none of the above
- 2354 An induction motor is identical to_____.
- compound motor
 - series motor
 - synchronous motor
 - asynchronous motor
- 2355 The starting torque of a 3-phase squirrel cage induction motor is_____.
- twice the full load torque
 - 1.5 times the full load torque
 - equal to full load torque
 - half the full load torque
- 2356 In induction motors, percentages slip depend on_____.
- supply frequency
 - supply voltage
 - copper losses in motor
 - none of the above
- 2357 The efficiency of an induction motor is_____ than that of a transformer.
- lower
 - higher
 - either of the above
 - none of the above
- 2358 The rotor circuit of a squirrel cage_____.
- run at very high speed
 - run at very low speed
 - make noise
 - not run
- 2359 The advantage of a slip-ring induction motor over a squirrel cage induction motor is that_____.
- it has higher efficiency
 - it has higher power factor
 - it can be started with the help of rotor resistance starter
 - none of the above
- 2360 The magnetizing current drawn by induction motors and transformers is the cause of their_____power factor.
- leading
 - lagging
 - unity
 - zero
- 2361 A 3-phase slip-ring induction motor is always started with_____.
- a starting winding
 - squirrel cage winding
 - no external resistance in rotor circuit
 - full external resistance in rotor circuit
- 2362 The synchronous speed of a 3-phase induction motor is given by the formula,_____.
- $N_s = 120f/P$
 - $N_s = 120P/f$
 - $N_s = 120fP$
 - $N_s = fP/120$
- 2363 Out of the following methods of starting a 3-phase induction motor, which one requires six stator terminals?
- Direct-on-line
 - Star-delta
 - Auto-transformer
 - Rotor rheostat
- 2364 If single-phasing occurs on the running position in an Induction motor, the motor will_____.
- fail to carry load
 - produce peculiar noise
 - draw unbalanced and excessive currents
 - not start
- 2365 The fractional slip of an induction motor is the ratio_____.
- rotor copper loss/rotor output
 - rotor copper loss/rotor input

- 2366 c. rotor copper loss/stator copper loss
d. stator copper loss/stator input
Each of the following statements regarding stator flux of an induction motor is true except_____.
- it induces e.m.f. in the rotor bars
 - its magnitude depends on the motor load
 - it is constant in magnitude
 - it revolves around the stator at synchronous speed
- 2367 The rotor of an induction motor cannot run with synchronous speed because_____.
- Lenz's law would be violated
 - induction motor would then become synchronous motor
 - rotor torque would then become zero
 - air friction prevents it to do so
- 2368 When a load on a squirrel-cage induction motor is increased from no-load to full load, which of the following statement is incorrect?
- Slip increases
 - The magnetizing component of the stator exciting current is increased
 - Stator power factor is improved
 - Torque developed by the motor increases till it equals the applied torque
- 2369 The power factor of an induction motor under no-load conditions is about_____.
- 0.2 lag
 - 0.4 lag
 - unity
 - 0.4 lead
- 2370 A pump induction motor is switched on to a supply 25 percent lower than its rated voltage. The pump runs; eventually_____.
- the pump will get heated and consequently get damaged
 - the pump will stall after sometimes
 - the pump will continue to run at lower speed without damage
 - the pump will run at normal speed
- 2371 If there is an open circuit in the rotor of a squirrel cage induction motor_____.
- rotor will overheat
 - line fuses will blow
 - motor will be noisy
 - motor will not start
- 2372 The principle of operation of a 3-phase induction motor is most similar to that of_____.
- transformer with a shorted secondary
 - synchronous motor
 - capacitor-start induction run motor
 - repulsion-start induction motor
- 2373 The speed of a 3-phase wound motor can be increased by_____.
- short-circuiting slip-rings
 - increasing applied voltage
 - decreasing applied voltage
 - decreasing external resistance in the rotor circuit
- 2374 The motor which would be best suited to drive a centrifugal pump for discharging a variable quantity of water against a fixed head is the_____.
- repulsion motor
 - synchronous motor
 - squirrel cage
 - slip ring induction motor
- 2375 For starting a Schrage motor, 3-phase supply is connected to_____.
- rotor via slip rings
 - regulating windings
 - secondary winding via brushes
 - stator as in an ordinary induction motor
- 2376 The primary winding of a Schrage motor is located_____.
- in stator
 - lower part of rotor
 - in upper part of rotor
 - partly in stator and partly in rotor

- 2377 When a stationary 3-phase induction motor is switched on with one phase disconnected _____.
- it will start but run very slowly
 - it will make jerky start with loud growling noise
 - remaining intact fuses will be blown out due to heavy rush of current
 - it is likely to burn out quickly unless immediately disconnected
- 2378 The upper bars in a double squirrel cage induction motor have_____.
- low resistance and high reactance
 - high resistance and high reactance
 - high resistance and low reactance
 - low resistance and low reactance
- 2379 The pull-out torque for a normal squirrel cage induction motor usually occurs at a percentage slip of about_____.
- 10 to 15 per cent
 - 20 to 25 per cent
 - 05 to 45 per cent
 - 50 to 60 per cent
- 2380 Speed variations of a squirrel cage induction motor are essentially similar to those of_____.
- shunt motor
 - series motor
 - synchronous motor
 - differential compound motor
- 2381 If air gap of the induction motor is increased, its_____.
- power factor will decrease
 - magnetizing current will decrease
 - magnetizing current will increase
 - power factor will increase
- 2382 Two of the power supply terminals to a 3-phase induction motor get interchanged during reconnection after maintenance of the motor. When put back into service, the motor will_____.
- get heated up and damaged
 - rotate in the same direction as it was prior to maintenance
 - fail to rotate
 - rotate in the reverse direction to that prior to maintenance
 - none of the above
- 2383 In a three-phase induction motor, the relative speed of stator flux with respect to_____is zero.
- space
 - rotor
 - stator winding
 - rotor flux
- 2384 In a 3-phase induction motor reactant under running conditions is less than its standstill value because of decrease in_____.
- stator magnetic flux
 - mutual flux linking the stator and rotor conductor
 - rotor inductance
 - frequency of rotor e.m.f.
- 2385 In case of a 3-phase wound rotor induction motor, an increase in rotor resistance affects the motor performance in the following way:
- the motor efficiency decreases
 - the motor efficiency increases
 - starting current decreases
 - starting current increases
 - the maximum torque is reduced
- 2386 A squirrel cage induction motor running on no-load is loaded, which of the following statements is incorrect?
- Current in the rotor bars decreases
 - Motor speed decreases
 - Torque developed by the rotor increases
 - Stator flux cuts the rotor bars more rapidly
 - Stator flux keeps rotating synchronously
- 2387 Which of the following statements about 3-phase induction motor is incorrect?
- It is capable of operation under a wide range of power factors both lagging and leading
 - It starts up from rest and has not be synchronized

- c. Its no-load line current may be as large as 40% of the full load current
- d. It has no commutator and no slip rings
- e. It has no moving contact between stator and rotor
- 2388 Which of the following statement about a double squirrel cage induction motor is incorrect?
- a. It has better speed regulation than squirrel cage motor
- b. Its upper cage is of low resistance and lower cage of high resistance
- c. It is particularly useful where frequent starting under heavy loads is required
- d. It maintains high efficiency during normal operating conditions
- 2389 When a double squirrel cage motor is started, the current induced in the rotor _____.
- a. flows mostly through the upper winding
- b. flows mostly through the lower winding
- c. is directly proportional to the impedance offered by each cage
- d. is equally divided between the two windings
- 2390 Regarding single-phasing of a 3-phase induction motor under running conditions which of the following statements is incorrect?
- a. it will stop and blow the remaining fuses
- b. It will continue to run without damage if it is carrying half load or less
- c. It will stop and promptly burnt out if it is heavily overloaded
- d. It will try to keep running though overheating of part of its winding if it is carrying full-load or slight over load
- 2391 The difference between the synchronous speed and the actual speed of an induction motor is known as _____.
- a. lag
- b. regulation
- c. slip
- d. back lash
- 2392 In a induction motor if P is the power delivered to a rotor and s is the slip, then the power lost in the rotor as copper loss will be _____.
- a. P/s
- b. sP
- c. s^2P
- d. P/s^2
- 2393 The frame of an induction motor is made of _____.
- a. carbon
- b. closed grained cast iron
- c. aluminium
- d. stainless steel
- 2394 Slip rings for induction motors are made of _____.
- a. phosphor bronze
- b. aluminium
- c. carbon
- d. cobalt steel
- 2395 If 's' is the slip and 'f' is the supply frequency, the frequency of rotor current is given by _____.
- a. s.f
- b. $s^2.f$
- c. $s.f/2$
- d. f/s
- 2396 Which of the following statements is correct about an induction motor?
- a. It is self starting with high torque
- b. It is self starting with zero torque
- c. It is self starting with small torque as compared to rated torque
- d. None of the above
- 2397 Type of bearing used for 25 H.P. motor is _____.
- a. roller bearing
- b. bush bearing
- c. needle bearing

- d. ball bearing
- 2398 When an induction motor is switched on the rotor frequency is_____.
- zero
 - 60 Hz
 - same as slip frequency
 - same as supply frequency
- 2399 In an induction motor, the rotor reactance per phase is proportional to_____.
- (where 's' is the slip)
- s
 - 1/s
 - 1/s²
 - s²
- 2400 A wound rotor induction motor can be distinguished from squirrel cage induction motor by_____.
- diameter of shaft
 - size of frame
 - presence of slip ring
 - direction or rotation
- 2401 Which of the following motors ia need for industrial application?
- Commutator motor
 - 3-phase induction motor
 - D.C. series motor
 - Synchronous motor
- 2402 The shaft, on which the rotor of an induction motor is mounted, is made of_____.
- high speed steel
 - chrome vanadium steel
 - cast-iron
 - mild steel
 - aluminium
- 2403 Which of the following type of bearing is generally used to support the rotor of an induction motor?
- Ball bearing
 - Needle bearing
 - Plummer block
 - Bush bearing
- 2404 Under which method of starting an induction motor is expected to take highest starting current?
- Star-delta starting
 - Auto-transformer starting
 - Direct on line starting
 - Stator-rotor starting
- 2405 When a squirrel cage induction motor fails to start which of the following could not be the reason for the same?
- Uneven air gap
 - Blown fuses
 - Overload
 - One or two phase open
- 2406 The stator of 5 H.P. inductions motor is provided with_____.
- open slots with tapered teeth
 - closed slots with parallel teeth
 - semi-closed slots with parallel teeth
 - open slots with parallel teeth
- 2407 The direction of rotation of a 3-phase induction motor can be reversed by_____.
- interchanging any two phases
 - supplying low voltage
 - reducing load
 - reducing frequency
- 2408 A wound rotor induction motor is usually not selected when_____.
- variable speed operation is desired
 - cost is the main consideration
 - high starting torque is the main consideration
 - external voltage is to be fed into rotor
- 2409 Which of the following features of induction motor helps in preventing cogging of motor?
- Skewed slots
 - High slip
 - Use of better insulating materials
 - Large number of poles
- 2410 The number of slip rings on a squirrel cage induction motor is_____.

- a. four
b. three
c. two
d. none
- 2411 Synchronous wattage of induction motor means_____.
- a. stator input in watts
b. rotor input in watts
c. combined stator and rotor input in watts
d. shaft output in watts
- 2412 If stator voltage of a squirrel cage induction motor is reduced to one-half its normal value, its starting current is reduced to_____ percent of its full voltage value.
- a. 75
b. 60
c. 50
d. 15
- 2413 If stator voltage of a squirrel cage induction motor is reduced to 50 percent of its rated value, torque developed is reduced by_____ percent of its full load.
- a. 90
b. 75
c. 50
d. 25
- 2414 In a 3-phase induction motor which of the following statements, regarding frequency of induced rotor e.m.f. is incorrect?
- a. Its speed varies inversely an slip
b. It is zero at synchronous speed
c. It is directly dependent on slip
d. It is maximum at stand still
- 2415 Which of the following motors are used frequently?
- a. Three phase induction motor
b. D.C. shunt motor
c. Three phase commutator motor
d. A.C. induction motor
- 2416 The starting torque of the slip ring induction motor can be increased by_____.
- a. adding resistance to the stator
b. adding resistance to the rotor
c. adding resistance to stator as well as the rotor
d. none of the above
- 2417 The stator frame in an induction motor is used_____.
- a. to protect the whole machine
b. to ventilate the armature
c. as a return path for the flux
d. to hold the armature stampings / stator
- 2418 The noise and tooth pulsation losses can be minimized by using_____.
- a. large number of narrow slots in stator
b. large number of open slots in stator
c. small number of narrow slots in stator
d. small number of open slots in stator
- 2419 If the rotor is open in a squirrel cage motor, it_____.
- a. will run at very high speed
b. will run at very slow speed
c. will not run
d. will make noise
- 2420 The value of average flux density in air gap in an induction motor, should be small_____.
- a. to achieve good efficiency
b. to get poor power factor
c. to get good power factor
d. for minimum cost
- 2421 An induction motor with large number of slots has_____.
- a. low over-load capacity
b. high over-load capacity
c. either of the above
d. none of the above
- 2422 In an induction motor the pulsation losses and noise can be reduced by using_____.
- a. large number of semi-open slots
b. large number of narrow slots
c. less number of narrow slots

- d. none of the above
- 2423 Whenever any poly-phase induction motor is loaded_____.
- induced e.m.f. decrease and frequency increases
 - induced e.m.f. in the rotor remains constant
 - induced e.m.f. in the rotor increases and its frequency also increases
 - induced e.m.f. in the rotor increases and its frequency falls
- 2424 Which of the following motors requires the most complicated speed control arrangement?
- D.C. shunt motor
 - Rotor supplied three phase commutator
 - Stator supplied three phase commutator
 - Three phase squirrel cage induction motor
- 2425 A 3-phase induction motor is running at a load of the rated torque. What happens when one of the outer mains is interrupted while the motor is running?
- The motor keeps on running and the current drawn does not change
 - The motor keeps on running but draws more current
 - The motor stops immediately
 - The motor stops after a few seconds
- 2426 What is the function of putting resistance in parallel to one phase of 3-phase induction motor?
- To attain higher starting torque
 - To achieve a smooth starting
 - To reduce the starting current to a very low value
 - To attain a higher maximum torque
- 2427 What is the disadvantage of the speed control of slip ring induction motor with the help of resistances in the rotor circuit?
- By using this method the speed can be easily controlled
 - This method is associated with high losses
 - With reductions in torque the speed decreases considerably
 - None of the above
- 2428 The reactance per phase as compared to the resistance per phase of an induction motor is_____.
- very small
 - quite high
 - almost same
 - slightly large
- 2429 What is the disadvantage of starting an induction motor with a star-delta starter?
- The starting torque is one third of the torque in case of the delta connection
 - During starting high losses are produced
 - The starting torque increases and the motor runs with jerks
 - None of the above
- 2430 An induction motor has a rated speed of 720 r.p.m. How many poles have its rotating magnetic field?
- 8 poles
 - 6 poles
 - 4 poles
 - 2 poles
- 2431 Which of the following methods of speed control is not affected through stator side?
- Change of number of poles
 - Change of rotor resistance
 - Change of supply voltage frequency
 - Change of supply voltage
- 2432 During starting if an induction motor hums, the probable cause could be_____.
- open circuit
 - unequal phase resistance
 - inter-turn short circuit on rotor
 - any of the above

- 2433 The possible number of different speeds that can be obtained by connecting two motors in cascade is_____.
- 2
 - 4
 - 6
 - 12
- 2434 The induction motors which are provided with open slots have_____.
- more break down torque
 - less break down torque
 - leading power factor
 - higher efficiency
- 2435 For a 50 H.P. motor, which type of rotor will be preferred?
- Die cast aluminium rotor
 - Wound rotor
 - Squirrel cage rotor using round copper bars
 - Squirrel cage rotor using rectangular copper bars
- 2436 If a three phase squirrel-cage induction motor runs slow, which of the following could not be the reason for the same?
- Shorted stator coils section
 - Low voltage
 - Overload
 - High frequency
- 2437 The probable reason for an induction motor running too hot could be_____.
- low voltage
 - uneven air gap
 - clogged ventilating ducts
 - any of the above
- 2438 Which of the following motors has the highest power to weight ratio?
- Synchronous motor
 - Capacitor motor
 - Induction motor
 - Universal motor
- 2439 In a 3-phase induction motor, iron loss_____.
- in rotor is negligible as compared to that in stator
 - in stator does not occur
 - in rotor is equal to iron loss in stator
 - in rotor is much more than the iron loss in stator
- 2440 Which of the following parameters for an induction motor varies as square of the supply voltage?
- Slip
 - Synchronous speed
 - Starting current
 - Maximum running torque
- 2441 If an induction motor is to be run on unbalanced supply, then it should be run at_____.
- lower loads
 - higher loads
 - low speeds
 - higher speeds
- 2442 In case single phasing occurs in delta connected motor_____.
- one phase will be seriously overloaded and two others will be slightly overloaded
 - two phases will be seriously overloaded and there will be no current in the third phase
 - there will be no current in one phase
 - there will be no current in two phases
- 2443 If single phasing occurs when the motor is running, it should not be loaded beyond_____.
- 5 per cent of rated load
 - 20 per cent of rated load
 - 50 per cent of rated load
 - 90 per cent of rated load
- 2444 The overheating of an induction motor may be due to_____.
- overloading
 - loss of ventilation
 - low supply voltage
 - any of the above

- 2445 Imbalance in shaft of the induction motor occurs due to_____.
- overheating of the winding
 - air gap is not uniform
 - slip rings
 - rugged construction
- 2446 The reversing of 3-phase motor is achieved by_____.
- star-delta starter
 - D.O.L. starter
 - an auto-transformer
 - interchanging any two of the supply lines
- 2447 Which of the following is not determined by circle diagram?
- Efficiency
 - Power factor
 - Frequency
 - Output
- 2448 What is the advantage of the slip ring induction motor over the squirrel cage induction motor?
- It has a higher power factor
 - It can be started with the help of rotor resistances
 - It is suitable for higher speeds
 - It can be started with the help of rotor resistances
- 2449 What is the advantage of starting a slip-ring induction motor with the help of rotor resistances as compared to other methods?
- The starter has to be designed for only a very low current
 - The starting current is reduced
 - starting torque increases due to the rotor resistances
 - The starter can be built directly into the motor
- 2450 What is the advantage of the double squirrel cage rotor as compared to the round bar cage rotor?
- The slip of the motor is larger
 - The efficiency of the motor is higher
 - The starting current of the motor is lower
 - The power factor of the motor is higher
- 2451 Synchronous speed is defined as_____.
- the speed of a synchronous motor
 - the natural speed at which a magnetic field rotates
 - the speed of the rotor of an induction motor
 - the speed of an induction motor at no load
- 2452 The speed of a three phase cage rotor induction motors depends on_____.
- number of poles only
 - input voltage
 - frequency of supply only
 - number of poles and frequency of the supply
 - none of the above
- 2453 Which of the following statements about the working of Schrage motor is incorrect?
- When injected e.m.f. boosts the secondary induced e.m.f. the motor runs at super synchronous speed
 - As the two brushes of a set are opened out, i.e., their distance from each other is increased, magnitude of the e.m.f. between them is decreased
 - Its speed is varied by varying the amount of slip frequency e.m.f. injected into the secondary circuit
 - It is capable of speed variation from zero to approximately twice the synchronous speed
- 2454 When a Schrage motor runs exactly at synchronous speed, then_____.
- secondary voltage E_2 comes into phase with primary back e.m.f. E_1
 - the speed of the motor field relative to that of regulating winding becomes zero
 - Voltage injected from the compensation winding into

- secondary becomes equal and opposite to the secondary induced voltage
- d. it behaves, in a sense, like a synchronous motor with compensating winding functioning as D.C. exciter
- 2455 Under average service conditions, motor bearings may be safely operated at temperatures up to_____.
- 120°C
 - 105°C
 - 95°C
 - 75°C
- 2456 Which of the following statements is correct regarding a 3-phase motor?
- Its magnetic flux alternates at the supply frequency
 - it is cheap, robust and needs no skilled maintenance
 - Stator is externally connected rotor
 - Three-phase supply is usually connected to its rotor
- 2457 The most important factor in motor maintenance is to keep_____.
- it clean and free from foreign materials
 - checking its insulation
 - regular check on line voltage
 - regular check of its lubrication
- 2458 The two important parts of a 3-phase induction motor are_____.
- rotor and armature
 - rotor and stator
 - slip ring and brushes
 - stator and field
- 2459 In a wound 3-phase induction motor, brushes should be connected to_____.
- external D.C. excitation
 - equalizing coils
 - power supply
 - external star connected resistors
- 2460 Phase advancers are used with induction motors to_____.
- reduce noise
 - reduce vibrations
 - reduce copper losses
 - improve power factor
- 2461 In moist surroundings which frame of motor will be preferred?
- Open type
 - Totally enclosed fan cooled
 - Drip proof
 - Splash proof
- 2462 The principle of operation of a three phase induction motors closely resembles to that of which of the following?
- Synchronous motor
 - D.C. series motor
 - Transformer with short-circuit secondary
 - Transformer with open-circuited secondary
- 2463 The slip of an induction motors normally does not depend on_____.
- Rotor speed
 - Synchronous speed
 - Shaft torque
 - Core loss component
- 2464 The formula used to find the capacitance C is_____.
- Q/v
 - Qv
 - $Q-v$
 - $Q + v$
 - $Q + v$
- 2465 The capacitor doesn't allow sudden changes in_____.
- Voltage
 - Current
 - Resistance
 - Capacitance
 - Resistance
- 2466 The Inductor doesn't allow sudden changes in_____.
- Voltage
 - Current

- c. Resistance
d. Inductance
- 2467 The expression for energy of an inductor _____.
- a. $\frac{1}{2}LI$
b. $L/2I$
c. $\frac{1}{2}L^2I$
d. $\frac{1}{2}LI^2$
- 2468 If the voltage across a capacitor is constant, then current passing through it is _____.
- a. 1
b. 0
c. -1
d. Infinity
- 2469 An Inductor works as a _____ circuit for DC supply.
- a. Open
b. Short
c. Polar
d. Non-polar
- 2470 The insulating medium between the two plates of capacitor is known as _____.
- a. Electrode
b. Capacitive
c. Conducting
d. Dielectric
- 2471 In a network maximum power transfer occurs when _____.
- a. $R_{Th} = -R_L$
b. $R_{Th}/R_L = 0$
c. $R_{Th} = R_L$
d. $R_{Th} + R_L = 1$
- 2472 Which method is best for voltage sources?
- a. Mesh analysis
b. Nodal analysis
c. Superposition principle
d. Differentiation method
- 2473 The Wheatstone Bridge is mainly used to measure _____.
- a. Currents
b. Voltages
c. Node potentials
d. Resistances
- 2474 The other name for Delta connection is _____.
- a. Star connection
b. Pi connection
c. T connection
d. Y connection
- 2475 The star and delta networks would be electrically equal if resistances measured between any pair of terminals _____.
- a. Is different
b. Greater in star
c. Greater in delta
d. Is equal
- 2476 _____ helps in current measurement by placing it in _____ with the circuit element.
- a. Voltmeter, Parallel
b. Ammeter, series
c. Voltmeter, series
d. Ammeter, parallel
- 2477 An ideal voltmeter has _____ equivalent resistance and ideal ammeter has _____ equivalent resistance.
- a. Unity, Unity
b. Zero, infinite
c. Infinite, Zero
d. Zero, Zero
- 2478 Continuous voltages or current signals are measured using _____.
- a. Tachometers
b. Sonometers
c. Analog meters
d. Digital meters
- 2479 An ideal ammeter functions as _____ circuit.
- a. A short
b. An open
c. A power
d. An infinite

- 2480 An ideal voltmeter functions as _____ circuit.
- A short
 - An open
 - A power
 - An infinite
- 2481 122mv, 12mA d'Arsonval movement is to be used in voltmeter whose full scale reading is 120v. The resistance inserted by 120V _____
- 1200 Ω
 - 12000 Ω
 - 1000 Ω
 - 10,000 Ω
- 2482 KCL is based on the fact that _____.
- There is a possibility for a node to store energy.
 - There cannot be an accumulation of charge at a node.
 - Charge accumulation is possible at node
 - Charge accumulation may or may not be possible.
- 2483 The algebraic sum of voltages around any closed path in a network is equal to _____.
- Infinity
 - 1
 - 0
 - Negative polarity
- 2484 Solder is an alloy of _____.
- Copper and aluminium
 - Tin and lead
 - Nickel, Copper and zinc
 - Silver, copper and lead
- 2485 The temperature, at which lubricating oil will give off sufficient vapors to form combustible mixture with air, is known as _____.
- Flash point
 - Fire point
 - Pour point
 - Combustion point.
- 2486 Out of the following which one is not a unconventional source of energy?
- Tidal Power
 - Geothermal Energy
 - Nuclear Energy
 - Wind Power
- 2487 Which of the following is not the voltage at which power is usually transmitted?
- 132 kV
 - 66 kV
 - 33 kV
 - 20 kV
- 2488 Standard frequency usually for electric supply is _____.
- 50 Hz
 - 60 Hz
 - 50 to 60 Hz
 - 50 to 55 Hz
- 2489 In power station practice "spinning reserve" is _____.
- reserve generating capacity that is in operation but not in service
 - reserve generating capacity that is connected to bus and ready to take the load
 - reserve generating capacity that is available for service but not in operation
 - capacity of the part of the plant that remains under maintenance
- 2490 For low head and high discharge, the hydraulic turbine used is _____.
- Kaplan turbine
 - Francis turbine
 - Pelton wheel
 - Jonual turbine.
- 2491 Photovoltaic solar energy conversion system makes use of _____.
- fuel cell
 - solar cell
 - solar pond
 - none of the above

- 2492 Solar cells are made of _____.
- silicon
 - germanium
 - silver
 - aluminium
- 2493 The maximum theoretical efficiencies of solar sales could be around _____.
- 99%
 - 60%
 - 48%
 - 1%.
- 2494 If the reactive power drawn by a load operating on a three phase AC system is zero then its power factor would be _____.
- zero
 - unity
 - less than unity
 - more than unity
- 2495 Apparent power consumption of AC 3 phase motors can be determined by using the following relations _____.
- $3 V I \cos\phi$
 - $\sqrt{3} V I$
 - $\sqrt{3} V I \cos\phi$
 - $3 V I$
- 2496 In a d.c. machine, the form of armature reaction mmf is _____.
- Triangular
 - Sinusoidal
 - Saw tooth
 - Rectangular
- 2497 In a self excited generator, if the series field opposes the shunt field, then the generator is _____.
- Cumulatively compounded
 - Differentially compounded
 - Series generator
 - None of these
- 2498 If the armature current of dc series motor has become twice then the torque will become _____.
- Twice of the former
 - Four times of the former
 - One fourth of the former
 - Remains same
- 2499 With the increase in temperature, the speed of series and shunt motor will _____.
- Increase, decrease
 - Decrease, increase
 - Increase, increase
 - Decrease, decrease
- 2500 If E_b is the back e.m.f. of d.c. motor and V is the terminal voltage, then the condition for maximum power is _____.
- $E_b = V$
 - $E_b = 2V$
 - $E_b = V / 2$
 - $E_b = V^2$
- 2501 The armature reaction in d.c. machine causes distortion in the main field flux. This effect of armature reaction can be reduced by _____.
- Increasing the length of air gap
 - Decreasing the length of air gap
 - Increasing the number of poles
 - Decreasing the number of poles
- 2502 The armature reaction in d.c. machine causes distortion in the main field flux. This effect of armature reaction can be reduced by _____.
- Increasing the length of air gap
 - Decreasing the length of air gap
 - Increasing the number of poles
 - Decreasing the number of poles
- 2503 The brush contact losses in a d.c. machine is _____.
- Inversely proportional to the square of current
 - Directly proportional to the square of current
 - Inversely proportional to the current
 - Directly proportional to the current
- 2504 Electrical power output in a d.c. generator is equal to _____.

- a. Electrical power developed in armature – copper losses
 b. Mechanical power input – iron and friction losses
 c. Electrical power developed in armature – iron and copper losses
 d. Mechanical power input – iron and friction losses – copper losses
- 2505 The rotational losses in d.c. machines are equal to the_____.
- a. Kinetic energy of armature
 b. Half of the kinetic energy of armature
 c. Square of the kinetic energy of armature
 d. Rate of change of kinetic energy
- 2506 The speed of permanent magnet d.c. motor cannot be controlled by_____.
- a. Flux control method
 b. Rheostatic control method
 c. Electronic circuits
 d. None of these
- 2507 For the protection of d.c. series motor, which starter is commonly used?
- a. Two point starter
 b. Three point starter
 c. Four point starter
 d. None of these
- 2508 Which starter does not provide high speed protection to the d.c. shunt motor?
- a. Three point starter
 b. Four point starter
 c. Two point starter
 d. None of these
- 2509 For frequent starting, stopping and reversals, which motor is commonly used?
- a. Permanent d.c. motor
 b. Ward-Leonard system
 c. Brushless d.c. motor
 d. All of these
- 2510 If a portion of armature current is diverted through the diverter resistance, then the speed of d.c. series motor_____.
- a. Remains same
 b. Increases
 c. Decreases
 d. None of these
- 2511 In electric traction, which type of motor is generally used?
- a. Shunt motor
 b. Series motor
 c. Cumulative compound motor
 d. Differential compound motor
- 2512 In a differential compound d.c. motor, with increase in load, speed_____.
- a. Increases
 b. Decreases
 c. Remains same
 d. None of these
- 2513 The starting torque developed in the d.c. series motor and in d.c. shunt motor is_____.
- a. High, low
 b. High, moderate
 c. Moderate, low
 d. Moderate, high
- 2514 For d.c. series motor, if I_a is the armature current then the torque developed is_____.
- a. $\propto I_a$
 b. $\propto I_a^2$
 c. $\propto 1 / I_a^2$
 d. $\propto 1 / I_a$
- 2515 For a constant torque load, if the armature resistance of shunt motor is doubled keeping the shunt field constant, then the armature current will_____.
- a. Double
 b. Get halved
 c. Remain same
 d. None of these
- 2516 The torque developed in d.c. shunt motor is_____.

- a. Directly proportional to the armature current
 b. Directly proportional to the square of the armature current
 c. Inversely proportional to the armature current
 d. Inversely proportional to the square of armature current
- 2517 D.C. shunt motor is also called as _____.
- a. Constant flux motor
 b. Constant voltage motor
 c. Variable voltage motor
 d. Constant current motor
- 2518 If the back e.m.f. of a d.c. motor is doubled and flux is halved keeping other parameters constant then its speed will become_____.
- a. Double of the original speed
 b. Square of the original speed
 c. Four times of the original speed
 d. Half of the original speed
- 2519 As the load on d.c. motor increases, the current drawn by motor _____.
- a. Increases
 b. Decreases
 c. Remains same
 d. None of these
- 2520 The generating action and motoring action in d.c. motor is determined by_____.
- a. Fleming's left hand rule, Fleming's right hand rule
 b. Both by Fleming's left hand rule
 c. Both by Fleming's right hand rule
 d. Fleming's right hand rule, Fleming's left hand rule
- 2521 In a d.c. machine, the commutator provides_____.
- a. Half wave rectification
 b. Full wave rectification
 c. Semi controlled rectification
 d. Uncontrolled rectification
- 2522 The armature in d.c. machines is always placed on rotor_____.
- a. Otherwise commutation will not be possible
 b. Otherwise there will not be any induced e.m.f.
 c. Otherwise current will not flow
 d. All of these
- 2523 Due to the effect of armature reaction in d.c. machine, the value of generated voltage and flux per pole_____.
- a. Increases, decreases
 b. Decreases, decreases
 c. Decreases, increases
 d. Increases, increases
- 2524 The conductors which will cause distortion in the main field flux of d.c. machine are_____.
- a. Demagnetizing armature conductors
 b. Cross magnetizing armature conductors
 c. Both (a) and (b)
 d. None of these
- 2525 In a d.c. machine, the eddy current losses mainly occur in_____.
- a. Armature
 b. Windings
 c. Yoke
 d. At brush contact
- 2526 For the construction of the armature of a d.c. machine, the best suited material is_____.
- a. Cast iron
 b. Silicon steel
 c. Carbon
 d. All of these
- 2527 In a d.c. machine, the current rating and voltage rating of wave winding is_____and_____respectively.
- a. Low, high
 b. High, low
 c. High, high
 d. Low, low
- 2528 Brushes in d.c. machines are made up of

- a. Cast iron
b. Mild steel
c. Copper
d. Carbon
- 2529 Functions of commutator in d.c. machines are_____.
- a. To facilitate the collection of current from armature conductors
b. To convert internally developed induced e.m.f. to unidirectional e.m.f.
c. To produce unidirectional torque in case of motors
d. All of these,
e. None of these
- 2530 To have d.c. voltage, a device is used in a d.c. generator to convert alternating e.m.f. to unidirectional e.m.f.. This device is called_____.
- a. Armature
b. Commutator
c. Brushes
d. All of these
- 2531 To have an induced e.m.f. in the d.c. generator, there should be relative motion between the conductor and flux. The plane of rotation and plane of flux_____.
- a. Should be parallel to each other
b. Should not be parallel to each other
c. Both (a) & (b)
d. None of these
- 2532 The most common method used to check for shorted windings is to perform_____.
- a. Field test
b. Drop test
c. Regenerative test
d. Brake test
- 2533 The test which can be performed on the d.c. series motor is
- a. Brake test
b. Hopkinson's test
c. Swinburne's test
d. Field test
- 2534 For performing Hopkinson's test two identical machines are required which are mechanically coupled. The iron losses in the two machines_____.
- a. Can be obtained separately
b. Cannot be separated
c. Both (a) & (b)
d. None of these
- 2535 The rotational or stray losses includes_____.
- a. Iron losses only
b. Iron losses, friction and windage losses
c. Iron losses, copper losses, friction and windage losses
d. None of these
- 2536 The speed in d.c. machine can be measured by using_____.
- a. Anemometer
b. Tachometer
c. Voltmeter
d. Ammeter
- 2537 While performing Swinburne's test, the iron losses are assumed to be
- a. Constant
b. Absent
c. Variable
d. None of these
- 2538 Out of electrical, mechanical and magnetic losses, the losses which is minimum?
- a. All are equal
b. Electrical losses
c. Magnetic losses
d. Mechanical losses
- 2539 Stray losses are the losses which vary with the load but their relationship with load current cannot be identified. Stray losses is maximum in
- a. Synchronous machines
b. D.C. machines
c. Induction machines
d. Equal in all types of machines

- 2540 Copper losses in a rotating machine are
- Variable losses
 - Constant losses
 - Both (a) or (b)
 - None of these
- 2541 For application in electric locomotives or for traction purposes, the most suitable motor is
- D.C. series motor
 - Differentially compounded motor
 - Cumulatively compounded motor
 - None of these
- 2542 The terminal voltage in the separately excited generators is given by
- $V = E_g - I_a R_a$
 - $V = E_g + I_a R_a$
 - $V = E_g - I_a R_a - I_f R_a$
 - $V = E_g + I_a R_a - I_f R_a$
- 2543 Yoke in a dc machine serves the function of
- Providing mechanical support to the poles
 - Protects the dc machine from harmful atmospheric elements like dust, moisture and gases
 - Offers a path of low reluctances to the magnetic flux produced by the poles
 - All of these
- 2544 In Fleming's right hand rule, the direction of the induced e.m.f. in the conductor is given by
- Index figure
 - Middle figure
 - Thumb
 - None of these
- 2545 How many types of faults can occur in a system?
- 2
 - 3
 - 5
 - Many
- 2546 Ferro-resonance can be added in _____.
- faults due to system
 - faults in the transformer
 - manual faults
 - other faults
- 2547 System-short circuits may occur due to _____.
- Line to line contacts
 - Line to neutral contacts if neutral is not earthed
 - Line to neutral contacts if neutral is earthed
 - LL and LG faults
- 2548 Mechanical stress produced in the circuit _____.
- directly proportional to the square of the voltage
 - inversely proportional to the square of the voltage
 - directly proportional to the square of the currents
 - inversely proportional to the square of the currents
- 2549 High voltage, high frequency surges can occur in the system due to _____.
- atmospheric disturbances
 - line faults
 - manual faults
 - line to neutral faults
- 2550 Surge impedance can be calculated as _____.
- L/C
 - C/L
 - $\sqrt{L/C}$
 - $\sqrt{C/L}$
- 2551 Generator transformers are _____.
- Step-up transformers
 - Step-down transformers
 - Auto-transformers
 - One-one transformers
- 2552 In the CCGT, how many step-up transformers will require?
- 3
 - 4
 - 5

- d. 6
- 2553 Which of the following is one of the criteria of selecting particular generator transformer?
- Low HV voltage
 - Low LV currents
 - High impedance
 - On-load tap-changer
- 2554 Station transformers are generally used for_____.
- Providing generator voltage to transmission
 - Providing power to load from transmission
 - Isolating DC
 - To supply power section auxiliary
- 2555 Which of the following does not follow the criteria of station transformer?
- LV at 11 kV
 - HV at 275-400 kV
 - Low impedance
 - On-load tap-changer required
- 2556 Operating load factor of station transformer must be_____.
- low
 - high
 - zero
 - infinite
- 2557 For a unit transformer HV voltage must be_____.
- 400 kV
 - 200 kV
 - 24 kV
 - 100 kV
- 2558 What voltage of On-load tap-changer is required for unit transformer?
- 11 kV
 - 23 kV
 - 400 kV
 - Not required
- 2559 On-load power factor for generator transformer is_____.
- high
 - low
 - can't define
 - zero
- 2560 Distribution transformers are generally designed for maximum efficiency around_____.
- 90% load
 - zero load
 - 25% load
 - 50% load
- 2561 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
 - insufficient information
- 2562 Distribution transformers have_____.
- smaller size than Power transformer
 - larger size than power transformers
 - size can be more or less depending on type
 - more weight than power transformers
- 2563 Joints are used in distribution transformers because_____.
- smaller in size
 - economical aspects
 - availability
 - less losses
- 2564 How power losses and noise levels are lowered down?
- By using another core material
 - By using step-lap construction
 - By using Different winding method
 - By using different oil

- 2565 Foil windings are used for distribution transformers _____.
- low voltage winding
 - high voltage winding
 - for both windings
 - not used
- 2566 Coil winding provides _____.
- less mechanical short circuit strength
 - low degree of electromagnetic balance
 - high degree of electromagnetic balance
 - can't tell by just winding type
- 2567 Voltage per turn in distribution transformers is _____.
- very high
 - very low
 - depends on application
 - depends on other components of system
- 2568 Which of the following can be used for HV winding in distribution transformers?
- Coil winding
 - Foil winding
 - Cross-over coil
 - Single dash folding
- 2569 Which of the following protective component is not provided on small distribution transformers?
- Over fluxing protection
 - Buchholz relay
 - Over current protection
 - Over current and over volt protection
- 2570 HVDC transformers are used widely _____.
- for transmission purpose
 - for generation purpose
 - for supplying DC machines
 - for every use of transformer
- 2571 HVDC converter transformers are generally _____.
- uni-directional
 - di-directional
 - non-directional
 - multi-directional
- 2572 Insulation of HVDC transformers should be _____.
- dry always
 - wet always
 - can be dry or wet
 - no need of insulation
- 2573 Tap winding is constructed so as to _____.
- maximize voltage regulation
 - minimize the voltage regulation
 - maximize the impedance regulation
 - minimize the impedance regulation
- 2574 Electronic converters for HVDC can be divided into _____.
- two types
 - three types
 - many types
 - only one type is possible
- 2575 Efficient LCC HVDC converters generally use _____.
- thyristor
 - mercury valves
 - diodes
 - mechanical switches
- 2576 HVDC LCCs have _____.
- 1 degree of freedom
 - 2 degrees of freedom
 - 5 degrees of freedom
 - Many degrees of freedom
- 2577 Which of the following is the problem with cast resin transformers?
- Voids
 - Less efficiency
 - Low capacity
 - Unavailability
- 2578 The rotor of a three phase induction motor can never attain synchronous speed.
- It is true
 - It is false

- c. Cannot be said
d. It depends on starting method of synchronous motor
- 2579 The direction of rmf when a single phase supply is given to stator of three phase induction motor is?
a. Zero
b. N_s
c. $2N_s$
d. $-N_s$
- 2580 Two three phase induction motors A and B are identical in all respects except that motor A has a larger air-gap than motor B. Which motor will have more no load current?
a. A
b. B
c. Both A and B
d. Neither A nor B
- 2581 Two three phase induction motors A and B are identical in all respects except that motor A has a larger air-gap than motor B. Which motor will have poorer power factor?
a. A
b. B
c. Both (a) and (b)
d. Neither (a) nor (b)
- 2582 Two three phase induction motors A and B are identical in all respects except that motor A has a larger air-gap than motor B. Which motor will have better full-load power factor?
a. A
b. B
c. Both (a) and (b)
d. Neither (a) nor (b)
- 2583 A three phase induction motor is sometimes called a generalized transformer in so far as voltage and frequency transformation has been concerned. How a three phase induction motor operates when rotor frequency is equal to stator frequency?
a. It will not operate
- b. It will operate as induction motor only
c. It will operate as induction generator
d. It will operate in braking mode
- 2584 A three phase induction motor is sometimes called a generalized transformer in so far as voltage and frequency transformation has been concerned. How a three phase induction motor operates when rotor frequency is greater than stator frequency?
a. Rotor will be driven against rmf
b. Rotor will be driven in direction of rmf
c. No e.m.f. will be induced
d. The losses will be maximum
- 2585 Three phase induction motor is sometimes called a generalized transformer in so far as voltage and frequency transformation has been concerned. How a three phase induction motor operates when rotor frequency is less than stator frequency?
a. It operates as induction motor
b. E.m.f. is induced in rotor
c. Rmf will rotate at synchronous speed
d. All of the mentioned
- 2586 A three phase induction motor is sometimes called a generalized transformer in so far as voltage and frequency transformation has been concerned. Then the rotor e.m.f. E_2 and the rotor current I_2 are zero at
a. N_s
b. $2N_s$
c. Zero
d. Slip of 50%
- 2587 The starting method for a 3-phase squirrel-cage induction motor which is inferior in view of poor starting torque per ampere of line current drawn is?

- a. series-inductor method of starting
b. direct-on-line starting
c. auto-transformer method
d. star-delta method
- 2588 An induction motor can be said analogous to_____.
- a. transformer
b. synchronous motor
c. universal motor
d. stepper motor
- 2589 A 3-phase induction motor with its rotor blocked behaves similar to a _____.
- a. transformer under short circuit of secondary terminals
b. transformer under open circuit of secondary
c. synchronous motor under slip test
d. synchronous motor under open circuit
- 2590 The rated current in induction motor for a three phase system is 100A. What can be the no load estimated current for the machine?
- a. 12 A
b. 20 A
c. 30 A
d. 5 A
- 2591 The no load current of the transformer is very less due to _____.
- a. mutual flux having low reluctance iron core
b. mutual flux having high reluctance iron core
c. leakage flux having low reluctance iron core
d. leakage flux having high reluctance iron core
- 2592 The no load current of the induction motor is high due to_____.
- a. long and high reluctance path between stator and rotor
b. mutual flux having moderate reluctance path between stator and rotor
- c. leakage flux having low reluctance iron core
d. leakage flux having high reluctance iron core
- 2593 At no load induction motor has possible power factor as_____.
- a. 0.2
b. 0.5
c. 0.65
d. 0
- 2594 Mechanically air gaps in induction motor are kept very low to avoid _____.
- a. lower power factor
b. lagging nature
c. magnetizing current
d. all of the mentioned
- 2595 The low no load power factor _____.
- a. reduces full load operating pf
b. increases full load operating pf
c. reduces full load excitation voltage
d. increases full load excitation voltage
- 2596 An induction motor when started on load, it does not accelerate up to full speed but runs at 1/7th of the rated speed. The motor is said to be _____.
- a. Locking
b. Pluming
c. Crawling
d. Cogging
- 2597 The great advantage of the double squirrel-cage induction motor over single cage rotor is that its _____.
- a. efficiency is higher
b. power factor is higher
c. slip is larger
d. starting current is lower
- 2598 The rotor of 3-phase slip ring induction motor is fed from a 3-phase supply with its stator winding short circuited having rotor rotating clockwise at a speed of N_r , then the _____.

- a. speed of air gap field w.r.t. stator is $N_s - N_r$ anticlockwise
 b. speed of air gap field w.r.t. stator is $N_s - N_r$ clockwise
 c. speed of air gap field w.r.t rotor is N_s clockwise
 d. speed of air gap field w.r.t. stator is $N_s - N_r$ clockwise
- 2599 A three phase induction motor _____.
- a. is not self starting
 b. is self starting
 c. starts on using starting capacitor
 d. none of the above
- 2600 A 3-phase induction motor can also be run as _____.
- a. synchronous generator
 b. induction generator
 c. dc shunt motor
 d. any of the mentioned
- 2601 Induction generator _____.
- a. cannot work in isolation
 b. can work in isolation
 c. should work in parallel with synchronous generators
 d. any of the mentioned
- 2602 A self excited induction generator _____.
- a. must have static capacitor bank
 b. can have static capacitor bank
 c. should have static capacitor bank
 d. any of the mentioned
- 2603 For an induction motor to work in isolation, it should have _____.
- a. lagging reactive power source
 b. leading reactive power source
 c. leading reactive power sink
 d. any of the mentioned
- 2604 The magnetization curve in the induction generator working in isolation has similar characteristic as _____.
- a. dc shunt generator
 b. dc cumulative field generator
 c. synchronous generator
 d. all of the mentioned
- 2605 If the residual flux is absent in the rotor iron of the isolated induction generator _____.
- a. it will not run
 b. it will run as induction motor
 c. it will burn the winding
 d. it will not affect the characteristic of the generator
- 2606 I. Voltage of an externally excited induction generator cannot be controlled. II. Frequency of an externally excited induction generator can be controlled.
- a. I is true, II is false
 b. I is true, II is true
 c. I is false, II is false
 d. I is false, II is true
- 2607 What is/are the shortcomings of an induction generator in real time system?
- a. It needs considerable amount of reactive power
 b. Efficiency is poor
 c. It can work at leading power factor only
 d. All of the mentioned
- 2608 Which is the most acceptable application field where an induction generator can be used?
- a. wind power system
 b. steam power system
 c. hydro power system
 d. nuclear power station
- 2609 A 3-phase induction motor has full load efficiency of 0.7 and a maximum efficiency of 0.85. It is operated at a slip of 0.6 by reduced voltage method. The efficiency of the motor at this operating point is?
- a. less than 0.35
 b. greater than 0.35
 c. in the range of 0.8 to 0.2
 d. none of the mentioned
- 2610 Two three phase squirrel-cage induction generator are identical in

- all respects except the fact that the slot depths in machine B is more than that of A. Machine B as compared to machine A will have _____.
- a. less pull out torque but better power factor
 b. more pull out torque but poor power factor
 c. less pull out torque and poor power factor
 d. more pull out torque and better power factor
- 2611 Slip is defined as _____ (N_s is the synchronous speed and N_r is the rotor speed)
 a. $(N_s - N_r) / N_s$
 b. $(N_s - N_r) / N_r$
 c. $(N_r - N_s) / N_s$
 d. $N_s - N_r$
- 2612 For a 4 pole three phase induction motor having synchronous speed of 1500 rpm is operating at 1450 rpm. The frequency of the induced e.m.f. in rotor is?
 a. 100 Hz
 b. 50 Hz
 c. 150 Hz
 d. 0 Hz
- 2613 A three phase, 50 Hz induction motor has a full load speed of 1440 rpm. The number of poles of this motor is?
 a. 4
 b. 6
 c. 5
 d. 2
- 2614 A three phase, 50 Hz induction motor has a full load speed of 1440 rpm. Rotor frequency is?
 a. 2 Hz
 b. 50 Hz
 c. 52 Hz
 d. 58 Hz
- 2615 Wound rotor induction motor is most appropriate for the applications requiring _____.
- a. high starting torque
 b. variable starting torque
 c. fixed starting torque
 d. all of the mentioned
- 2616 Relatively a squirrel-cage induction motor is advantageous over wound rotor type induction motor of identical rating due to _____.
- a. less conductor material used
 b. lower leakage flux
 c. ruggedness
 d. all of the mentioned
- 2617 Relatively a squirrel-cage induction motor is advantageous over wound rotor type induction motor of identical rating due to _____.
- a. less conductor material used
 b. larger leakage flux
 c. large starting torque
 d. all of the mentioned
- 2618 We cannot operate a cage induction motor on a variable frequency load due to _____.
- a. no availability of varying the speed
 b. availability of variable speed
 c. low starting torque
 d. fixed slip
- 2619 Speed control is possible for _____ and not possible for _____.
- a. induction motor, synchronous motor
 b. induction motor, differential motor
 c. synchronous motor, synchronous-induction motor
 d. dc motor, induction motor
- 2620 Which of the following can be done using a synchronous motor but not by induction motor?
 a. Power factor improvement
 b. Supplying mechanical load
 c. Power factor improvement and supply mechanical load
 d. None of the mentioned

- 2621 The torque in an induction motor varies as _____ and in synchronous motor as _____.
- square of voltage, proportion to voltage
 - proportion to voltage, proportion to voltage
 - proportion to voltage, square of voltage
 - square of voltage, square of voltage
- 2622 Reducing the poles of a 3-phase induction motor, it _____.
- will decrease maximum power factor
 - will increase maximum power factor
 - will make no change in power factor
 - cannot be depicted
- 2623 When the poles of a 3-phase wound rotor induction motor increased, it _____.
- will decrease maximum power factor
 - will increase maximum power factor
 - will make no change in power factor
 - cannot be depicted
- 2624 A 3-phase induction motor taking a line current of 200 A, is started by direct switching. If an auto transformer of with 50% tapping is made to be used, the motor line current and supply line current will be respectively?
- 100, 50
 - 50, 100
 - 50, 200
 - 50×1.73 , 200
- 2625 No load test has been conducted on an induction motor for different supply voltages and input power vs voltage plot has been drawn. The curve is extrapolated to intersect the y-axis. This point is?
- friction and windage losses
 - core losses
 - stray losses
 - all of the mentioned
- 2626 Voltage induce in the induction motor is highest at _____.
- starting
 - standstill
 - rated speed
 - any of the mentioned
- 2627 Starters are required in the induction motor because _____.
- of high starting current
 - they are not self starting
 - torque produced is very low at starting to overcome inertia
 - all of the mentioned
- 2628 Full voltage starting of induction motor may cause _____.
- dip in the voltages
 - high inrush current
 - high losses
 - all of the mentioned
- 2629 For a 4-pole, 50 Hz induction motor has starting current as 5 times to that of the full load current working at a speed of 1450rpm. The ratio of starting to full load torque will be?
- 0.83
 - 0.17
 - 0.67
 - 1
- 2630 Series reactor method of starting has main disadvantage of _____.
- lowering the starting power
 - increasing the starting current
 - increasing starting torque
 - all of the mentioned
- 2631 Series reactor method of starting has main disadvantage of lowering the starting power. This can be overcome by _____.
- using series resistance
 - using parallel reactor
 - using parallel resistance
 - using series reactor
- 2632 For the application requiring high starting torque and minimum

- starting current, the most suitable starting method will be?
- Auto transformer starting method
 - Reactance starting method
 - DOL method
 - Star-Delta method
- 2633 Auto transformer method of starting has most acceptable method for the starting of the induction motor due to_____.
- maximum torque
 - maximum reduction of inrush current
 - variable tapping
 - all of he mentioned
- 2634 An external method of induction motor starting is employed to _____.
- Reduce the voltage
 - Reduce the current
 - Improve efficiency
 - All of the mentioned
- 2635 A 3-phase induction motor is fed at the stator at a frequency f . If the rotor speed is N_r and synchronous speed is N_s , then the absolute speed of the resultant flux in space is?
- N_s
 - (N_s+N_r) if the flux rotates in the same direction as the rotor
 - (N_s-N_r) if the flux rotates in the same direction as the rotor
 - N_r
- 2636 A 3-phase slip ring IM is has its copper bars changed by the aluminium bars in the machine. With the above change _____.
- maximum torque decreases
 - starting torque increase
 - starting torque decrease
 - starting torque remains same
- 2637 A center ammeter connected to the rotor end circuit of a 6-pole, 50 Hz, induction motor makes 45 complete oscillations in a minute. Then the
- rotor speed and the speed of stator field w.r.t. rotor is?
- 985, 15
 - 970, 1000
 - 985, 985
 - 985, 970
- 2638 Choose from the below which can be obtained by the equivalent circuit of an electrical machine?
- Complete performance characteristics of the machine
 - Temperature coefficients of the machine components
 - Type of protection to be used in the machine
 - Design parameters of the windings
- 2639 Due to the line to ground fault, phase 'a' in the induction motor phase supply gets cut, then machine _____.
- continues to run with excessive supply current
 - continues to run with reduced slip
 - stalls
 - all of the above
- 2640 For 3-phase induction motor, as load increases from no load towards the full load then the_____.
- power factor improves
 - power factor remains same
 - power factor varies linearly
 - power factor increases till 40% load and then decreases
- 2641 For 3-phase induction motor, as load increases from no load towards the full load, torque_____slip.
- increases in proportion to
 - decreases in proportion to
 - remains constant to
 - increases hyperbolically to
- 2642 Torque-slip characteristic of an induction motor is linear in the smaller slip values, because _____.
- effective rotor resistance is very large compared to reactance

- b. rotor resistance is equal to stator resistance
 c. rotor resistance is equal to rotor reactance
 d. rotor reactance almost equal to stator reactance
- 2643 If a 3-phase induction motor is fed from the rotor short circuiting the stator terminals, frequency of the current flowing in the short-circuited stator is?
 a. slip frequency
 b. supply frequency
 c. zero
 d. frequency corresponding to the rotor speed
- 2644 A constant torque variable power drive of induction machine has _____.
 a. constant air gap flux
 b. constant slip
 c. variable air gap flux, constant slip
 d. constant slip, constant air gap flux
- 2645 If an e.m.f. at slip frequency is injected at an angle α with existing rotor induced e.m.f., then the _____.
 a. power factor only improves
 b. speed changes
 c. power factor improves and speed changes
 d. power factor worsens and speed changes
- 2646 Concentrated winding differ from distributed winding with the concern of _____.
 a. identical magnetic axis
 b. two magnetic axis
 c. no magnetic axis
 d. physical spacing
- 2647 DC machines have _____ windings and synchronous machines use _____ windings.
 a. closed, open
 b. open, closed
 c. open, open
 d. closed, closed
- 2648 We can place closed windings in _____.
 a. ac commutator machine
 b. stepper motor
 c. ac machine
 d. dc machine
- 2649 Which of the following machines can be used to place open slot winding?
 a. ac machine
 b. ac commutator machine, ac machine
 c. dc machines
 d. all of the mentioned
- 2650 The simplex lap winding has the range of winding pitch of _____.
 a. (-2,2)
 b. (-1,1)
 c. more than 2
 d. less than 1
- 2651 The commutator pitch for a simplex lap winding is equal to _____.
 a. 1 and -1
 b. 1
 c. -1
 d. 2 to -2
- 2652 A 200V dc machine has 4 poles and 40 coils, having simplex lap winding. The number of commutator segments which required in the given machine will be?
 a. 40
 b. 20
 c. 80
 d. 26
- 2653 No. of commutator segments in a DC shunt machine is equal to the number of _____.
 a. coil sides
 b. turns
 c. coils
 d. slots

- 2654 We can employ dummy coils in a DC machine to_____.
- compensate reactance voltage
 - reduce armature reaction
 - provide mechanical balance to the armature
 - improve the waveforms generated inside the commutator
- 2655 In AC machines we should prefer double layer winding over single layer windings because_____.
- it requires identical coils
 - it is economical to use
 - it offers lower leakage reactance
 - all of the mentioned
- 2656 For an electrical machine with C number of coils and P poles, the distance between the coils connected by an equalizer ring is?
- C/P
 - $C/2$
 - $2C/P$
 - $C/2P$
- 2657 With a P-pole DC machine with armature current I_a , the current per brush arm for a lap connected windings is?
- I_a/P
 - $I_a/2P$
 - $2I_a/P$
 - $I_a/4P$
- 2658 For a given dc machine it is advised to use the dummy windings for a stable operation. But if it has be replaced as it unused component in the machine, then we must _____.
- $S/(P/2)$ should not be an integer
 - $S/(P/2)$ should be integer
 - S/P should be integer
 - S/P should not be an integer
- 2659 While doing regular checks on the dc machine with the lap connected winding, it is reported to have ammeter fluctuations, this can be due to_____.
- different air gaps under poles
 - variable reluctances in the core
 - irregular design deformations
 - all of the mentioned
- 2660 A 6-pole lap wound DC generator has a developed power of P watts and brush voltage of E volts. Three adjacent brushes of the machine had been found worn out and got open circuited. If the machine is operated with the remaining brushes, voltage and power that could be obtained from the machine are_____.
- E, P
 - E, $2P/3$
 - E/P , $2P/3$
 - E, $P/3$
- 2661 The synchronous machine is operating at a normal condition at the generating system, then the angle between rotor axis and the stator magnetic axis is _____.
- Load angle
 - Power factor angle
 - Impedance angle
 - None of the mentioned
- 2662 Swing equation is very famous for describing the relation between the _____.
- rotor motion and stator field
 - stator and rotor field
 - load angle and rotor field
 - moment of inertia and rotor motion
- 2663 Swing equation which describes the relative motion of the rotor of the machine, is a_____.
- linear and second-order differential equation
 - non linear and second-order differential equation
 - non linear and first-order differential equation
 - non linear and hyperbolic equation

- 2664 A variation in the power transfer had been observed at the generating station while power exchange process due to _____ and is known as _____.
- swing of the machine, inertial response
 - sub synchronism, hunting
 - sub synchronism, inertial response
 - swing of the machine, falling out of the rotor
- 2665 Why the angle δ , rotor angle is famously called as the load angle in the equation of rotor dynamics?
- Due to power exchange is a function of δ
 - Because it dictates the reactive power compensation
 - Due to load variations
 - No dependency on the load dynamics
- 2666 H.R.C. fuses provide best protection against _____.
- overload
 - reverse current
 - open-circuits
 - short-circuits
- 2667 The ground wire should not be smaller than No _____ copper.
- 2
 - 4
 - 6
 - 10
- 2668 The delay fuses are used for the protection of _____.
- motors
 - power outlet circuits
 - fluorescent lamps
 - light circuits
- 2669 Which of the following is the least expensive protection for over current is low voltage system?
- Rewireable fuse
 - Isolator
 - Oil circuit breaker
 - Air break circuit breaker
- 2670 Synchronous motors are generally not self-starting because
- the direction of rotation is not fixed
 - the direction of instantaneous torque reverses after half cycle
 - starters cannot be used on these machines
 - starting winding is not provided on the machines
- 2671 In case one phase of a three-phase synchronous motor is short-circuited the motor will _____.
- not start
 - run at 2/3 of synchronous speed
 - run with excessive vibrations
 - take less than the rated load
- 2672 A pony motor is basically a
- small induction motor
 - D.C. series motor
 - D.C. shunt motor
 - double winding A.C./D.C. motor
- 2673 A synchronous motor can develop synchronous torque _____.
- when under loaded
 - while over-excited
 - only at synchronous speed
 - below or above synchronous speed
- 2674 A synchronous motor can be started by _____.
- pony motor
 - D.C. compound motor
 - providing damper winding
 - any of the above
- 2675 Three-phase synchronous motors will have _____.
- no slip-rings
 - one slip-ring
 - two slip-rings
 - three slip-rings
- 2676 Under which of the following conditions hunting of synchronous motor is likely to occur?
- Periodic variation of load
 - Over-excitation
 - Over-loading for long periods

- d. Small and constant load
- 2677 When the excitation of an unloaded salient pole synchronous motor suddenly gets disconnected_____.
- the motor stops
 - it runs as a reluctance motor at the same speed
 - it runs as a reluctance motor at a lower speed
 - none of the above
- 2678 When V is the applied voltage, then the breakdown torque of a synchronous motor varies as_____.
- V
 - $V^3/2$
 - V^2
 - $1/V$
- 2679 The power developed by a synchronous motor is maximum, when the load angle is_____.
- zero
 - 45°
 - 90°
 - 120°
- 2680 A synchronous motor can be used as a synchronous capacitor when it is_____.
- under-loaded
 - over-loaded
 - under-excited
 - over-excited
- 2681 A synchronous motor is running on a load with normal excitation. Now if the load on the motor is increased_____.
- power factor as well as armature current will decrease
 - power factor as well as armature current will increase
 - power factor will increase but armature current will decrease
 - power factor will decrease and armature current will increase
- 2682 Mostly, synchronous motors are of_____.
- alternator type machines
 - induction type machines
 - salient pole type machines
 - smooth cylindrical type machines
- 2683 The synchronous motor is not inherently self-starting because_____.
- the force required to accelerate the rotor to the synchronous speed in an instant is absent
 - the starting device to accelerate the rotor to near synchronous speed is absent
 - a rotating magnetic field does not have enough poles
 - the rotating magnetic field is produced by only 50 Hz frequency currents
- 2684 As the load is applied to a synchronous motor, the motor takes more armature current because_____.
- the increased load has to take more current
 - the rotor by shifting its phase backward causes motor to take more current
 - the back e.m.f. decreases causing an increase in motor current
 - the rotor strengthens the rotating field causing more motor current
- 2685 Synchronous motor always runs at_____.
- the synchronous speed
 - less than synchronous speed
 - more than synchronous speed
 - none of the above
- 2686 An over-excited synchronous motor takes_____.
- leading current
 - lagging current
 - both (a) and (b)
 - none of the above

- 2687 The working of a synchronous motor is similar to_____.
- gear train arrangement
 - transmission of mechanical power by shaft
 - distribution transformer
 - turbine
 - none of the above
- 2688 The minimum armature current of the synchronous motor corresponds to operation at_____.
- zero power factor leading
 - unity power factor
 - 0.707 power factor lagging
 - 0.707 power factor leading
- 2689 In a synchronous motor, the magnitude of stator back e.m.f. & depends on_____.
- d.c. excitation only
 - speed of the motor
 - load on the motor
 - both the speed and rotor flux
- 2690 If load (or torque) angle of a 4-pole synchronous motor is 6° electrical, its value in mechanical degrees is_____.
- 2
 - 3
 - 4
 - 6
- 2691 For V-curves for a synchronous motor the graph is drawn between_____.
- field current and armature current
 - terminal voltage and load factor
 - power factor and field current
 - armature current and power factor
- 2692 The back e.m.f. of a synchronous motor depends on_____.
- speed
 - load
 - load angle
 - all of the above
- 2693 A synchronous motor can operate at
- lagging power factor only
 - leading power factor only
 - unity power factor only
 - lagging, leading and unity power factors
- 2694 In a synchronous motor which loss varies with load?
- Windage loss
 - Bearing friction loss
 - Copper loss
 - Core loss
- 2695 A synchronous motor can be made self starting by providing_____.
- damper winding on rotor poles
 - damper winding on stator
 - damper winding on stator as well as rotor poles
 - none of the above
- 2696 The oscillations in a synchronous motor can be damped out by_____.
- maintaining constant excitation
 - running the motor on leading power factors
 - providing damper bars in the rotor pole faces
 - oscillations cannot be damped
- 2697 The shaft of synchronous motor is made of_____.
- mild steel
 - chrome steel
 - alnico
 - stainless steel
- 2698 When the field of a synchronous motor is under-excited, the power factors will be_____.
- leading
 - lagging
 - unity
 - zero
- 2699 The speed regulation of a synchronous motor is always_____.
- 1%
 - 0.50%
 - positive
 - zero

- 2700 The percentages slip in case of a synchronous motor is_____.
- 1%
 - 100%
 - 0.50%
 - zero
- 2701 The operating speed of a synchronous motor can be changed to new fixed value by_____.
- changing the load
 - changing the supply voltage
 - changing frequency
 - using brakes
- 2702 A synchronous motor will always stop when_____.
- supply voltage fluctuates
 - load in motor varies
 - excitation winding gets disconnected
 - supply voltage frequency changes
- 2703 Hunting in a synchronous motor takes place_____.
- when supply voltage fluctuates
 - when load varies
 - when power factor is unity
 - motor is under loaded
- 2704 When load on an over-excited or under excited synchronous* motor is increased, rate of change of its armature current as compared with that of power factor is_____.
- more
 - less
 - equal
 - twice
- 2705 The rotor copper losses, in a synchronous motor, are met by
- d.c. source
 - armature input
 - motor input
 - supply lines
- 2706 The maximum power developed in a synchronous motor occurs at a coupling angle of_____.
- 30°
 - 60°
 - 90°
 - 180°
- 2707 When the stator windings are connected in such a fashion that the number of poles are made half, the speed of the rotor of a synchronous motor_____.
- remains same as the original value
 - decreases to half the original value
 - tends to becomes zero
 - increases to two times the original value
- 2708 In which of the following motors the stator and rotor magnetic field rotate at the same speed?
- Universal motor
 - Synchronous motor
 - Induction motor
 - Reluctance motor
- 2709 Synchronizing power of a synchronous machine is_____.
- directly proportional to the synchronous reactance
 - inversely proportional to the synchronous reactance
 - equal to the synchronous reactance
 - none of the above
- 2710 Synchronous motors are_____.
- not-self starting
 - self-starting
 - essentially self-starting
 - none of the above
- 2711 The standard full-load power factor ratings for synchronous motors are_____.
- zero or 0.8 leading
 - unity or 0.8 lagging
 - unity or 0.8 leading
 - unity or zero
- 2712 A synchronous motor running with normal excitation adjusts to load increases essentially by increase in_____.
- back e.m.f.
 - armature current
 - power factor

- d. torque angle
- 2713 A synchronous motor has better power factor as compared to that of an equivalent induction motor. This is mainly because_____.
- synchronous motor has no slip
 - stator supply is not required to produce magnetic field
 - mechanical load on the rotor remains constant
 - synchronous motor has large air gap
- 2714 A synchronous motor working at leading power factor can be used as_____.
- voltage booster
 - phase advancer
 - noise generator
 - mechanical synchronizer
- 2715 Slip rings are usually made of_____.
- carbon or graphite
 - brass or steel
 - silver or gold
 - copper or aluminium
- 2716 An over excited synchronous motor is used for_____.
- fluctuating loads
 - variable speed loads
 - low torque loads
 - power factor corrections
- 2717 When the voltage applied to a synchronous motor is increased, which of the following will reduce?
- Stator flux
 - Pull in torque
 - Both (a) and (b)
 - None of the above
- 2718 The efficiency of a properly designed synchronous motor will usually fall in range_____.
- 60 to 70%
 - 75 to 80%
 - 85 to 95%
 - 99 to 99.5%
- 2719 To limit the operating temperature an electrical machine should have proper
- voltage rating
 - current rating
 - power factor
 - speed
- 2720 Slip-rings in a synchronous motor carry_____.
- direct current
 - alternating current
 - no current
 - all of the above
- 2721 A synchronous machine with large air gap has_____.
- a higher value of stability limit
 - a small value of inherent regulation
 - a higher synchronizing power which makes the machine less sensitive to load variations
 - all of the above
- 2722 The armature current of the synchronous motor has higher values for_____.
- high excitation only
 - low excitation only
 - both (a) and (b)
 - none of the above
- 2723 In a synchronous motor running with fixed excitation, when the load is increased three times, its torque angle becomes _____approximately.
- one-third
 - twice
 - thrice
 - six times
 - nine times
- 2724 Which of the following methods is used to start a synchronous motor?
- Damper winding
 - Star-delta starter
 - Damper winding in conjunction with star-delta starter
 - Resistance starter in the armature circuit

- 2725 When the rotor speed, in a synchronous machine, becomes more than the synchronous speed during hunting, the damper bars develop_____.
- inductor motor torque
 - induction generator torque
 - synchronous motor torque
 - d.c. motor torque
 - none of the above
- 2726 An important advantage of a synchronous motor over wound round induction motor is that_____.
- its power factor may be varied at will
 - its speed is independent of supply frequency
 - its speed may be controlled more easily
 - none of the above
- 2727 The mechanical displacement of the rotor with respect to the stator, in poly-phase multi-polar synchronous motors running at full load, is of the order of_____.
- zero degree
 - two degrees
 - five degrees
 - ten degrees
- 2728 Power factor of a synchronous motor is unity when_____.
- the armature current is maximum
 - the armature current is minimum
 - the armature current is zero
 - none of the above
- 2729 Change of D.C. excitation of a synchronous motor changes_____.
- applied voltage of the motor
 - motor speed
 - power factor of power drawn by the motor
 - any of the above
 - all of the above
- 2730 While starting a synchronous motor by induction motor action, field winding is usually_____.
- connected to D.C. supply
 - short-circuited by low resistance
 - kept open-circuited
 - none of the above
- 2731 Which of the following motors will be used in electric clocks?
- D.C. shunt motor
 - D.C. series motor
 - A.C. induction motor
 - A.C. synchronous motor
- 2732 If in a synchronous motor, driving mechanical load and drawing current at lagging power factor from constant voltage supply, its field excitation is increased, then its power factor_____.
- become more
 - become less
 - remain constant
 - none of the above
- 2733 A synchronous motor installed at the receiving end substation operates with such an excitation that it takes power at lagging power factor. Now if the applied voltage of the synchronous motor goes down, the power factor of the synchronous motor will_____.
- remain same
 - go down
 - improve
 - none of the above
- 2734 While starting a salient pole synchronous motor by induction motor action and connecting field discharge resistance across field, starting and accelerating torque is produced by_____.
- induction motor torque in field winding
 - induction motor torque in damper winding
 - eddy current and hysteresis torque in pole faces

- d. reluctance motor torque due to saliency of the rotor
- e. all of the above methods
- 2735 Armature of a synchronous machine is
- a. of reducing number of slip rings on the rotor
- b. armature is associated with large power as compared to the field circuits
- c. of difficulty of providing high voltage insulation on rotor
- d. all of the above reasons
- 2736 If excitation of a synchronous motor running with a constant load is decreased from its normal value, ignoring effects of armature reaction, it leads to_____.
- a. increase in both armature current and power factor angle
- b. increase in back e.m.f. but decrease in armature current
- c. increase in both armature current and power factor which is lagging
- d. increase in torque angle but decrease in back e.m.f.
- 2737 When a 3-phase synchronous generator is supplying a zero power factor lagging load, the armature field affects the main field in the following way_____.
- a. augments it directly
- b. directly opposes it
- c. cross-magnetizes it
- d. none of the above
- 2738 Stability of a synchronous machine _____.
- a. decreases with increase in its excitation
- b. increases with increase in its excitation
- c. remains unaffected with increase in excitation
- d. any of the above
- 2739 The power factor of a synchronous motor is better than that of induction motor because _____.
- a. stator supply is relieved of responsibility of producing magnetic field
- b. mechanical load on the motor can be adjusted
- c. synchronous motor runs at synchronous speed
- d. synchronous motor has large air gap
- 2740 If in a synchronous motor, driving a given mechanical load and drawing current at a leading power factor from constant voltage supply its field excitation is increased, its power factor _____.
- a. will become more
- b. will become less
- c. will remain unchanged
- d. none of the above
- 2741 A synchronous motor is running with normal excitation. When the load is increased, the armature current drawn by it increases because_____.
- a. speed of the motor is reduced
- b. power factor is decreased
- c. E_b (back e.m.f.) becomes less than V (applied voltage)
- d. E_r (net resultant voltage) in armature is increased
- e. none of the above
- 2742 If one-phase of a 3-phase synchronous motor is short-circuited, motor_____.
- a. will refuse to start
- b. will overheat in spots
- c. will not come up to speed
- d. will fail to pull into step
- 2743 If the field circuit of an unloaded salient pole synchronous motor gets suddenly open circuited, then _____.
- a. it runs at a slower speed
- b. the motor stops
- c. it continues to run at the same speed

- d. it runs at a very high speed
- 2744 In which of the following motors the stator and rotor fields rotate simultaneously?
- D.C. motor
 - Reluctance motor
 - Universal motor
 - Synchronous motor
 - induction motor
- 2745 The speed of a synchronous motor _____.
- increases as the load increases
 - decreases as the load decreases
 - always remains constant
 - none of the above
- 2746 A rotary converter can also be run as a _____.
- d.c. shunt motor
 - d.c. series motor
 - d.c. compound motor
 - induction motor
 - synchronous motor
- 2747 The maximum speed variation in a 3-phase synchronous motor is _____.
- 10 per cent
 - 6 per cent
 - 4 per cent
 - 2 per cent
 - zero
- 2748 Which of the following resistances can be measured by conducting insulation resistance test on a synchronous motor?
- Phase to phase winding resistance
 - Stator winding to earthed frame
 - Rotor winding to earthed shaft
 - All of the above
- 2749 Due to which of the following reasons a synchronous motor fails to pull into synchronism after applying D.C. field current?
- High field current
 - Low short circuit ratio
 - High core losses
 - Low field current
- 2750 In a synchronous motor, the maximum power developed depends on all of the following except _____.
- rotor excitation
 - maximum value of coupling angle
 - direction of rotation
 - supply voltage
- 2751 In a 3-phase synchronous motor, the negative phase sequence exists when the motor is _____.
- supplied with unbalanced voltage
 - under-loaded
 - over-loaded
 - none of the above
- 2752 In a synchronous motor, damper windings are provided on _____.
- stator frame
 - rotor shaft
 - pole faces
 - none of the above
- 2753 The induced e.m.f. in a synchronous motor working on leading power factor will be _____.
- more than the supply voltage
 - less than the supply voltage
 - equal to the supply voltage
 - None of the above
- 2754 The effect of increasing the load on a synchronous motor running with normal excitation is to _____.
- decrease both armature current and power factor
 - decrease armature current but increase power factor
 - increase armature current but decrease power factor
 - increase both its armature current and power factor
- 2755 The net armature voltage of a synchronous motor is equal to the _____.
- vector sum of E_b and V
 - arithmetic sum of E_b and V
 - arithmetic difference of E_b and V

- d. vector difference of E_b and V
- 2756 The ratio of starting torque to running torque in a synchronous motor is _____.
- zero
 - one
 - two
 - infinity
- 2757 In a synchronous motor, the magnitude of stator back e.m.f. E_b depends on _____.
- load on the motor
 - d.c. excitation only
 - both the speed and rotor flux
 - none of the above
- 2758 A 3-phase synchronous motor is running clockwise. If the direction of its field current is reversed, _____.
- the motor will stop
 - the motor continue to run in the same direction
 - the winding of the motor will burn
 - the motor will run in the reverse direction
 - none of the above
- 2759 The magnitude of field flux in a 3-phase synchronous motor _____.
- remains constant at all loads
 - varies with speed
 - varies with the load
 - varies with power factor
- 2760 The torque angle, in a synchronous motor, is the angle between _____.
- the supply voltage and the back e.m.f.
 - magnetizing current and back e.m.f.
 - the rotating stator flux and rotor poles
 - none of the above
- 2761 Hunting in a synchronous motor cannot be due to _____.
- windage friction
 - variable load
 - variable frequency
 - variable supply voltage
- 2762 By which of the following methods the constant speed of a synchronous motor can be changed to new fixed value?
- By changing the supply frequency
 - By interchanging any two phases
 - By changing the applied voltage
 - By changing the load.
- 2763 In a synchronous motor, V-curves represent relation between _____.
- armature current and field current
 - power factor and speed
 - field current and speed
 - field current and power factor
- 2764 In a 3-phase, 4-pole, 50 Hz synchronous motor, the frequency, pole number and load torque all are halved. The motor speed will be _____.
- 3000 r.p.m.
 - 1500 r.p.m.
 - 750 r.p.m.
 - none of the above
- 2765 A synchronous motor connected to infinite bus-bars has at constant full load, 100% excitation and unity power factor. On changing the excitation only, the armature current will have _____.
- no change of power factor
 - lagging power factor with over-excitation
 - leading power factor with under-excitation
 - leading power factor with over-excitation
- 2766 Which of the following motors is non-self starting?
- D.C. series motor
 - synchronous motor
 - Squirrel cage induction motor
 - Wound round induction motor

- 2767 In a synchronous motor if the back e.m.f. generated in the armature at no-load is approximately equal to the applied voltage, then_____.
- the motor is said to be fully loaded
 - the torque generated is maximum
 - the excitation is said to be zero per cent
 - the excitation is said to be hundred per cent
- 2768 In a synchronous motor, the damping winding is generally used to_____.
- prevent hunting and provide the starting torque
 - reduce the eddy currents
 - provide starting torque only
 - reduce noise level
 - none of the above
- 2769 If the field of a synchronous motor is under excited, the power factor will be_____.
- zero
 - unity
 - lagging
 - leading
- 2770 The back e.m.f. in the stator of a synchronous motor depends on _____.
- number of poles
 - flux density
 - rotor speed
 - rotor excitation
 - none of the above
- 2771 The maximum value of torque that a synchronous motor can develop without losing its synchronism is known as_____.
- slip torque
 - pull-out torque
 - breaking torque
 - synchronizing torque
- 2772 In a synchronous motor, the armature current has large values for_____.
- high excitation only
 - low excitation only
 - both high and low excitation
 - none of the above
- 2773 Which of the following losses, in a synchronous motor, does not vary with load?
- Windage loss
 - Copper losses
 - Any of the above
 - None of the above
- 2774 The size of a synchronous motor decreases with the increase in _____.
- flux density
 - horse power rating
 - speed
 - all of the above
- 2775 Which of the following losses is not dissipated by the stator core surface in a synchronous motor?
- Eddy current losses in the conductors
 - Iron losses in the stator
 - Copper losses in the slot portion of the conductors
 - Windage losses
 - none of the above
- 2776 The duration of sudden short-circuit test on a synchronous motor is usually about_____.
- one hour
 - one minute
 - one second
 - none of the above
- 2777 The maximum constant load torque under which a synchronous motor will pull into synchronism at rated rotor supply voltage and frequency is known as_____.
- pull-up torque
 - pull-in torque
 - pull-out torque
 - none of the above
- 2778 A synchronous machine with low value of short-circuit ratio has _____.
- lower stability limit

- b. high stability limit
c. good speed regulation
d. good voltage regulation
e. none of the above
- 2779 The construction of a synchronous motor resembles_____.
- a. a series motor
b. an induction motor
c. an alternator
d. a rotary converter
- 2780 If the field winding of an unloaded salient pole synchronous motor is open circuited, the motor will _____.
- a. stop
b. run as induction motor
c. function as static condenser
d. burn with dense smoke
- 2781 For power factor correction, synchronous motors operate at _____.
- a. no-load and greatly over-excited fields
b. no-load and under-excited fields
c. normal load with minimum excitation
d. normal load with zero excitation
- 2782 The maximum torque which a synchronous motor will develop at rest for any angular position of the rotor, at rated stator supply voltage and frequency, is known as _____.
- a. locked-rotor torque
b. synchronous torque
c. pull up torque
d. reluctance torque
- 2783 Exciters of synchronous machines are_____.
- a. d.c. shunt machines
b. d.c. series machines
c. d.c. compound machines
d. any of the above
- 2784 The coupling angle or load angle of synchronous motor is defined as the angle between the_____.
- a. rotor and stator teeth
b. rotor and the stator poles of opposite polarity
c. rotor and the stator poles of the same polarity
d. none of the above
- 2785 If the synchronous motor, properly synchronised to the supply is running on no load and is having negligible loss, then_____.
- a. the stator current will be zero
b. the stator current will be very small
c. the stator current will be very high
d. the back e.m.f. will be more than the supply voltage
e. none of the above
- 2786 The armature current of the synchronous motor_____.
- a. has large values for low excitation
b. has large values for high excitation only
c. has large values for low and high excitation
d. any of the above
- 2787 The maximum power developed in a synchronous motor will depend on _____.
- a. the rotor excitation only
b. the supply voltage only
c. the rotor excitation and supply voltage both
d. the rotor excitation, supply voltage and maximum value of coupling angle (90°)
e. none of the above
- 2788 A synchronous motor which works on a leading power factor and does not drive a mechanical load is called as_____.
- a. static condenser
b. condenser
c. synchronous condenser
d. none of the above
- 2789 A synchronous motor develops maximum power when load angle is _____.

- a. 45°
b. 60°
c. 90°
d. 120°
- 2790 In a synchronous motor, the breakdown torque is_____.
- a. directly proportional to applied voltage
b. directly proportional to the square of the applied voltage
c. inversely proportional to applied voltage
d. none of the above
- 2791 A single phase induction motors are _____.
- a. simple in construction
b. comparatively cheaper and reliable
c. easy to repairs and maintenance
d. all of the above
- 2792 A single phase motor can be classified as_____.
- a. commutator motor
b. induction motor
c. synchronous motor
d. all of the above
- 2793 What are the drawbacks of single phase induction motors?
- a. low output as compared to 3-phase motor
b. low power factor and low efficiency
c. low overload capacity as compared to 3-phase motor
d. all of the above
- 2794 A 3-phase induction motor has becomes a single phase when _____.
- a. opening of one line or phase
b. opening of two line or phase
c. it operated only on one line supply
d. any of the above
- 2795 In 3-phase induction motors, if one of the lines of three phase supply is opened_____.
- a. motor continue to run at same speed
b. motor continue to run at slightly lower speed
c. motor will stop
d. motor will continue to rum more than rated speed
- 2796 A single phase induction motor consists of_____.
- a. two winding
b. three winding
c. only one winding
d. four winding
- 2797 In single phase induction motors, there are two windings namely _____.
- a. starting winding or auxiliary winding
b. main winding or running winding
c. both (a) and (b)
d. neutral and phase winding
- 2798 In single phase induction motor the main winding is shifted from auxiliary winding by_____.
- a. 45°
b. 90°
c. 180°
d. 120°
- 2799 Which of the following is not self start motors?
- a. 3-phase induction motor
b. dc motors
c. single phase motor
d. reluctance motor
- 2800 The temperature at which oil vapour ignites spontaneously is called _____.
- a. fire point
b. flash point
c. vaporization point
d. condensation point
- 2801 Under stationary condition of single phase motor the slip is_____.
- a. zero
b. one
c. negative
d. none of the above

- 2802 What is the value of slip when rotor is blocked?
- 1
 - 0
 - 0 to 1
 - 0.5
- 2803 Which of the following principle used to start the single phase induction motor?
- faraday' low of electromagnetic induction
 - principle of phase split
 - principle of electrolysis
 - none of the above
- 2804 In single phase motor in order to provide high resistance and low inductance the stator winding is wound with_____.
- large number of turns of thick wire
 - large number of turns of thin wire
 - fewer number of turns of fine wire
 - any of the above
- 2805 The main winding of single phase induction motor is of_____.
- thinner wire
 - thicker wire
 - large number of turns
 - large number of fine wire
- 2806 Which of the following winding is design for continuous operation of single phase motor?
- auxiliary winding
 - main winding
 - damper winding
 - field winding
- 2807 To reverse the direction of split phase motor by reversing _____.
- the line connections of main winding
 - the line connection of the auxiliary winding
 - Either (a) or (b)
 - Both (a) and (b)
- 2808 _____ is a static device that transfers electric energy from one circuit to another circuit without change frequency.
- solid state device
 - power electronics device
 - transformer
 - all of the above
- 2809 A transformer is_____.
- static electromagnetic device
 - static electric device
 - static magnetic device
 - solid state device
- 2810 A transformer consisting of two or more windings which is link with a _____.
- separate magnetic field
 - common magnetic field
 - electric field
 - none of the above
- 2811 A transformer consisting of two or more_____.
- stationary magnetic circuits
 - stationary electric circuits
 - only one magnetic circuit
 - only one electric circuit
- 2812 In transformer, why two or more stationary electric circuits interlinked by a common magnetic circuit?
- for the purpose of change in frequency
 - for the purpose change in magnetic field
 - for the purpose of transferring electrical energy between them
 - for the purpose of transferring mechanical energy between them
- 2813 A transformer is work on the principle of_____.
- electrostatic
 - electromagnetic induction
 - electrolysis
 - all of the above
- 2814 Principle of transformer is based on _____.
- faradays low of electrolysis
 - Faradays low of induction

- c. Fleming's rule
d. Ampere's circuital law
- 2815 The basic construction of transformer requires_____.
- a. moving parts
b. no moving parts
c. minimum amount of repairs and maintenance
d. Both B and C
- 2816 A transformer can_____.
- a. change the voltage level
b. change the frequency
c. change the power
d. all of the above
- 2817 The major parts of transformer _____.
- a. Primary winding
b. magnetic core
c. Secondary winding
d. all of the above
- 2818 The winding which is connected to the ac supply is called_____.
- a. secondary winding
b. field winding
c. primary winding
d. excitation
- 2819 The winding at which load is connected in transformer is called _____.
- a. Excitation winding
b. secondary winding
c. primary tertiary winding
d. field winding
- 2820 The basic working principle of transformer is on basis of _____.
- a. dynamically induced e.m.f.
b. statically induced e.m.f.
c. electrolysis
d. all of the above
- 2821 The alternating flux link primary winding to secondary winding, the e.m.f. is induced in it is called _____.
- a. statically induced e.m.f.
b. dynamically induced e.m.f.
c. self induced e.m.f.
d. mutually induced e.m.f.
- 2822 A transformer works on_____.
- a. ac only
b. dc only
c. both ac as well dc
d. none of the above
- 2823 A _____ is the steel system which forms the magnetic circuit with all parts pertaining to construction of the transformer.
- a. primary winding
b. secondary winding
c. transformer core
d. tank
- 2824 Parts of the magnetic circuit which carry the transformer windings are called_____.
- a. yoke
b. limbs
c. legs
d. Both (b) and (c)
- 2825 A part which connects the legs and serves for closing magnetic circuit of the transformer is called _____.
- a. Tank
b. Yokes
c. magnetic core
d. all of the above
- 2826 The core material should be _____.
- a. the maximum flux is created with maximum magnetizing current
b. minimum core loss
c. the maximum flux is created with minimum magnetizing current
d. Both (b) and (c)
- 2827 Which of the following material is used for magnetic core of the transformer?
- a. silicon steel
b. iron
c. cast steel
d. cast iron

- 2828 Silicon steel has_____.
- low permeability
 - high permeability
 - high permittivity
 - low permittivity
- 2829 If the silicon content in the transformer core increases beyond_____, the steel get brittle.
- 20%
 - 5%
 - 10%
 - 2%
- 2830 The time required to complete one cycle is called_____.
- period time
 - rotational
 - frequency
 - angular momentum
- 2831 The unit of period is_____.
- meter
 - second
 - meter per second
 - cycle per second
- 2832 Which of the following is/are correct?
- $f = 1/T$
 - $T = 1/f$
 - Both (a) and (b)
 - $T = f$
- 2833 What is periodic time of a system with frequency of 50 Hz?
- 0.2 sec
 - 0.02 sec
 - 2 sec
 - 0.002 sec
- 2834 If periodic time is 0.0166 se what will be the system frequency?
- 60 Hz
 - 70 Hz
 - 40 Hz
 - 100 Hz
- 2835 Angular velocity is_____.
- time / angular distance
 - angular distance / time
 - angular distance
 - distance per meter square
- 2836 Which of the following is correct?
- $v = v \sin\phi$
 - $V = \sin\phi$
 - $v = V_m \sin\phi$
 - $V_m = V_m \sin\phi$
- 2837 The maximum value of voltage V occur when
- $\sin\phi = 1/\sqrt{2}$ or 45°
 - $\sin\phi = 1$ or 90°
 - $\sin\phi = 0$ or 180°
 - $\sin\phi = 0$ or 360°
- 2838 _____ is called an alternator
- generator
 - DC generator
 - AC generator
 - motor generator set
- 2839 Which of the following is/are correct?
- $f = PN/120$
 - $N = 120 f/P$
 - $p = P/2$
 - all of the above
- 2840 What will be the highest speed at which a 60 Hz generator can be operated?
- 3000 rev/min
 - 3200 rev/min
 - 3600 rev/min
 - 3800 rev/min
- 2841 Calculate frequency if the speed in revolutions per minutes of 2 pole alternator is 3000?
- 49 Hz
 - 50 Hz
 - 51 Hz
 - 40 Hz
- 2842 The value of the alternating quantity at a given instant or time is called_____.
- minimum value
 - instantaneous value
 - maximum value
 - fixed value

- 2843 The instantaneous value _____.
- varies from instant to instant
 - it is denoted by small or lower case letters
 - It indicate the value of given quantity at that given time
 - all of the above
- 2844 Maximum value is the maximum value of _____attained by it in a cycle.
- DC quantity
 - AC quantity
 - Both (a) and (b)
 - none of the above
- 2845 Maximum value is also called _____.
- crest value
 - peak value
 - amplitude
 - all of the above
- 2846 Maximum value of ac quantity is denoted by_____.
- small letters
 - capital letters with subscript m
 - italic letters
 - any size letter
- 2847 The domestic supply voltage 230V implies that it is the_____ voltage.
- average value
 - maximum value
 - r.m.s value
 - instantaneous value
- 2848 Average value of current over the whole cycle is_____.
- zero
 - maximum
 - minimum
 - infinite
- 2849 What will be the average value for any periodic function having a wave symmetrical about horizontal axis over a complete cycle?
- maximum
 - infinite
 - zero
 - minimum
- 2850 For sine wave half cycle average value if given by_____.
- 0.637 x maximum value
 - 2 x maximum value/ π
 - Both (a) and (b)
 - 2 x maximum value
- 2851 Which of the following is correct equation of r.m.s value?
- 0.707 x maximum value
 - maximum value / $\sqrt{2}$
 - 0.707 x average value
 - Both (a) and (b)
- 2852 The movement of electron inside a conductor/conducting material is called_____.
- Current
 - Ions
 - Atoms
 - Electrons, atoms and ions
- 2853 The rate of change of charge with respect to time is called as _____.
- Power
 - Flux density
 - Voltage
 - Current
- 2854 The unit of charge is_____.
- Coulomb
 - Volt
 - Ampere
 - Ampere-hour
- 2855 The unit of current is_____.
- Coulombs/second
 - Amperes/secon
 - Volts/second
 - All of the above
- 2856 The direction of flow of conventional current is always _____.
- Same as compared to that of the electron current
 - Undefined
 - Opposite to that of the electron current

- d. Both (a) and (b)
- 2857 _____ always flows from higher potential to lower potential
- An Electric current
 - Power
 - Voltage
 - Pressure
- 2858 Practical unit of current is _____.
- Coulomb/sec
 - Coulomb
 - Ampere/sec
 - All of the above
- 2859 _____ is a unit of electromotive force as well as potential difference in practical as well as in SI system of unit.
- Ampere
 - Watt
 - Volt
 - kWh
- 2860 _____ is the work done against the force of repulsion to bring a charge closer to the other once.
- Potential difference
 - E.M.F.
 - Electric potential
 - Electric intensity
- 2861 The force between like charge and unlike charge?
- Attractive, Repulsive
 - Attractive, Attractive
 - Repulsive, Repulsive
 - Repulsive, Attractive
- 2862 If the potential difference between the two points is zero then the current flowing between them is _____.
- Zero
 - Infinite
 - Not define
 - None of the above
- 2863 _____ between any two points is defined as the difference between the electric potentials at that point.
- Static potential
 - Potential difference
 - Electric potential
 - Electric field
- 2864 The potential difference between two points is equal to 1 volt; if _____ work is done to displace a unit charge of _____ from the point lower potential to the point of higher potential.
- 1Wh, 1C
 - 1KW, 1C
 - 1W,1C
 - 1J,1C
- 2865 The unit of current is _____.
- Volts
 - Ampere
 - Ampere-hour
 - Watt
- 2866 The electron and proton contains _____ and _____ charge?
- Positive, Negative
 - Positive, Positive
 - Negative, Negative
 - Negative , Positive
- 2867 The atoms contains followings
- Electron
 - Proton
 - Neutron
 - All of the above
- 2868 The unit of resistance is _____.
- Coulomb
 - Second
 - Volts
 - Ohm
- 2869 The property of material to oppose the flow of current is called _____.
- Conductance
 - Inductance
 - Resistance
 - Impedance
- 2870 The resistance of material depends upon which of the following?
- Length of the material

- b. Area of the material
c. Resistivity of the material
d. All of the above.
- 2871 If the length of the conducting material is increases, then_____.
- a. Resistance of the material is decreases
b. Resistance of the material remains same
c. Resistance of the material increases
d. None of the above
- 2872 Which of the following is the best conductor of electricity?
- a. Silver
b. Copper
c. Gold
d. Aluminum
- 2873 Materials are classified on the basis of electrical property as_____.
- a. Conductors
b. Insulators
c. Semi conductors
d. All of the above
- 2874 With increase in temperature then resistance of conducting materials _____.
- a. Decrease
b. Increase
c. Remains same
d. None of the above
- 2875 The resistance of a thick conductor is_____as compare to that of thin materials
- a. Lower
b. Higher
c. Same
d. All of the above
- 2876 The length of conductor is doubled and its area remains same then their resistances will be_____.
- a. Doubled
b. Increased by 4 time
c. Remains same
d. None of the above
- 2877 The resistivity is also called as _____.
- a. Specific conductance
b. Specific resistance
c. Resistance
d. All of the above
- 2878 The value of the resistivity of the material will depend upon which of the following?
- a. Length
b. Temperature
c. Cross sectional area
d. Type of material
- 2879 The unit of resistivity is_____.
- a. Ohm
b. Ohm-meter
c. Meter-ohm
d. Ohm per meter
- 2880 The current density is the ratio of_____.
- a. Current per unit resistance
b. Current per unit area
c. Area per unit current
d. All of the above
- 2881 An electric current is a_____ quantity.
- a. Scalar
b. Vector
c. Scalar and vector
d. None of the above.
- 2882 An electric current has both magnitude as well as direction yet it is not a vector quantity because?
- a. It is obey vector laws
b. It is obey the laws of simple algebra
c. It does not obey vector laws and the laws of simple algebra
d. All of the above
- 2883 What is the electromagnetic unit of current?
- a. Ampere
b. Volt-Ampere
c. emu or abampere
d. Coulombs

- 2884 A 1ampere is equal to _____ emu of current.
- 1/10 emu of current
 - 1/20 emu of current
 - 1/30 emu of current
 - 1/40 emu of current
- 2885 An electrostatic unit of current is _____.
- Emu or abampere
 - Watt-hour
 - Coulombs/second
 - esu or statampere
- 2886 According to ohm's law, current is _____ proportional to _____.
- Inversely, power
 - Directly, Resistance
 - Directly, Potential difference
 - Inversely, potential difference
- 2887 Ohm's law is applicable to _____.
- Applied either entire circuit of a part of a circuit
 - Applied to a.c. as well d.c. circuits
 - Both (a) and (b)
 - None of the above
- 2888 According to Ohm's law, the characteristic of V-I is?
- Non linear
 - Linear
 - Both (a) and (b)
 - All of the above
- 2889 Ohm's law is not applicable for _____.
- Magnetic coupled circuit like transformer
 - Semi conductor devices such as diode, transistor, thyristors, SCR
 - Vacuum tube such as vacuum diode, triode, tetrode, pentode
 - All of the above
- 2890 Ohm's law is not applicable for _____.
- Gas filled tubes phenotron, thyrostron
 - Temperature dependent device
 - Photo sensitive devices.
 - All of the above
- 2891 The material those obey ohms law is called _____.
- Non Ohmic elements
 - Ohmic element
 - Both (a) and (b)
 - None of the above
- 2892 The material those do not obey ohms law is called?
- Non Ohmic elements
 - Ohmic element
 - Both (a) and (b)
 - None of the above
- 2893 According to ohm's law Resistance is related to current and voltage as _____.
- $R = V/I$
 - $R = V/P$
 - $R = V/I$
 - $R = I/V$
- 2894 The potential difference across the resistance is equal to which of the following:
- Resistance x Voltage
 - Voltage x Current
 - Current x Resistance
 - All of the above
- 2895 S.I unit of power is?
- Ampere
 - Volt
 - Ohms
 - Watt
- 2896 Which of the following is correct?
- $P = VI$
 - $P = I^2R$
 - $P = V^2/R$
 - All of the above
- 2897 One watt power is equal to _____.
- $1W = 1 \text{ Joule/ } 1\text{Sec}$
 - $1\text{volt} \times 1 \text{ ampere}$
 - Both (a) and (b)
 - None of the above
- 2898 One kilowatt is equal to ?

- a. 1000 Watt
b. 10000 Watt
c. 100 Watt
d. 10 Watt
- 2899 _____ is also unit of power.
a. Joule
b. Ohm
c. H.P.
d. Ampere-hour
- 2900 One Horse Power is equal to _____ watt?
a. 750 Watt (British horse power)
b. 746 Watt (British horse power)
c. 735.5 Watt (Metric horse power)
d. Both (b) and (c)
- 2901 S.I unit of electric energy is _____.
a. joule
b. Power
c. Watt
d. Voltage
- 2902 The correct expressions of energy is / are _____.
a. $E = VIt$
b. $E = V^2t/R$
c. $E = I^2Rt$
d. All of the above
- 2903 Commercial unit or Board of trade unit of electrical energy is _____.
a. KW
b. VI
c. KWh
d. VIt
- 2904 The heat develops in material when one ampere current flows through it for one second and resistance of the material in one ohm is _____.
a. 0.24 joules
b. 1 calorie
c. 0.29 calorie
d. 0.24 calories
- 2905 The best insulator is that which has the _____ value of resistivity?
a. Zero
- b. Smaller
c. Highest
d. Not defined
- 2906 The conductance is defined as the _____ of resistance.
a. Reciprocal
b. Directly proportional
c. Equals
d. None of the above
- 2907 If the conductance of the material is increased then resistant will _____.
a. Increase
b. Remains same
c. Not defined
d. Decrease
- 2908 The conductance is also defined as the reciprocal of _____.
a. Inductance
b. Capacitance
c. Resistance
d. Conductivity
- 2909 _____ are known as bad conductor of electricity.
a. Insulators
b. Isolators
c. Semiconductors
d. Conductors
- 2910 _____ is defined as the reciprocal of resistivity.
a. Specific resistance
b. Conductivity
c. Resistance
d. All of the above
- 2911 The conductivity of insulating material is _____.
a. Low
b. High
c. Zero
d. Smallest
- 2912 All the electrical elements are connected in the _____ circuit will carry the same current through it.
a. Parallel

- b. Delta
c. Series
d. Both (a) and (c)
- 2913 Which of the following statement is correct with respect to "The resistors are connected in series"?
- a. All the starting and end terminal are connected at a one point
b. End terminal of one resistance is connected to the starting end of next resistance
c. Combination of both (a) and (b)
d. None of the above
- 2914 Which of the following is correct for series combination of R_1, R_2, R_3 ?
- a. $R_T = R_1 + R_2 / R_3$
b. $1/R_T = 1/R_1 + 1/R_2 + 1/R_3$
c. $R_T = R_1 + R_2 + R_3$
d. $R_T = 1/R_1 + 1/R_2 + 1/R_3$
- 2915 The total resistance of the series combination of resistors is always _____ the individual resistance.
- a. Higher than
b. Equal to
c. Less than
d. Not defined
- 2916 Voltage across each resistor connected in series is _____.
- a. Same
b. Not equal
c. Both (a) and (b)
d. Not defined
- 2917 Voltage across each resistor connected in the _____ circuits is same.
- a. Series
b. Delta
c. Parallel
d. Star
- 2918 Which of the following is correct expression for resistor R_1, R_2, R_3 are connected in parallel?
- a. $R_T = R_1 + R_2 / R_3$
b. $1/R_T = 1/R_1 + 1/R_2 + 1/R_3$
c. $R_T = R_1 + R_2 + R_3$
d. $R_T = 1/R_1 + 1/R_2 + 1/R_3$
- 2919 The total resistance /effective of the parallel combination of resistors are always _____ the individual resistance.
- a. Higher than
b. Equal to
c. Less than
d. All of the above
- 2920 Which of the following statement is correct with respect to "The resistors are connected in parallel"?
- a. All the starting terminals connected at a one point and all end terminals are connected at a one point
b. End terminal of one resistance is connected to the starting end of next resistance
c. Combination of both (a) and (b)
d. All of the above
- 2921 The current 'I' is the _____ of the currents through the individual resistors connected in parallel.
- a. Same
b. Multiplication
c. Sum / addition
d. None of the above
- 2922 All the domestic appliances are connected in _____.
- a. Series
b. Delta
c. Both (a) and (b)
d. Parallel
- 2923 Which of the following is an example of series connection?
- a. The chain of small lights used for the decorative purpose
b. Refrigerators, TV
c. Small motors used in domestic
d. All of the above
- 2924 If four bulb B_1, B_2, B_3, B_4 are connected in series and one of them bulb B_1 get fused, then _____.
- a. Remaining bulbs will glow
b. Remaining bulbs will not glow
c. Remaining bulbs B_2, B_3 glows but B_4 will not glow

- d. All of the above
- 2925 Two bulbs marked 100 W-250 volts and 200W-250 volts are connected in series to 250 volts supply. Power consumed in circuit is equal to
- 100Watt
 - 300Watt
 - 150Watt
 - 67Watt
- 2926 Ampere second could be the unit of_____.
- Charge
 - Conductance
 - Energy
 - Power
- 2927 _____is not same as Watt.
- Ampere x volt
 - (Ampere)² x ohm
 - Ampere/volt
 - Joule/ sec
- 2928 Two resistance $R_1 = 1.5 \Omega$ and $R_2 = 3 \Omega$ are connected in circuit, what is its equivalent resistance when connected in series_____and in parallel
- 4.5 Ω and 1 Ω
 - 3.5 Ω and 5 Ω
 - 2 Ω and 2.5 Ω
 - 1 Ω and 4.5 Ω
- 2929 There are three resistors 2 Ω , 2 Ω , 4 Ω . Which of the following will gives effective resistance of 5 Ohms?
- 2 Ω resistance in series with parallel combination of 2 Ω and 4 Ω
 - 4 Ω resistance in series with parallel combination of 2 Ω and 2 Ω
 - 2 Ω resistance in parallel with series combination of 2 Ω and 4 Ω
 - 4 Ω resistance in parallel with series combination of 2 Ω and 2 Ω
- 2930 There are four identical resistors are first connected in series and then parallel. The resultant resistances of the first combination to the second will be_____.
- 16 times
 - 1/4 times
 - 4 times
 - 1/16 times
- 2931 What is the resistance of lamp of 100 W, 200 V?
- 400 Ω
 - 2000 Ω
 - 250 Ω
 - 1600 Ω
- 2932 _____method can be use for absolute measurement of resistance.
- Wheatstone bridge
 - Ohm's law method
 - Kelvin Bridge
 - All of the above
- 2933 "Energy can neither be produced nor can be destroyed but it can be transformed or converted from one form in to other". This statement is given by_____.
- law of conservation of energy
 - law of energy conversion
 - law of universe
 - all of the above
- 2934 Which of the following energy is not available in the direct from the nature?
- chemical energy
 - wind energy
 - water energy
 - electrical energy
- 2935 In generating station mechanical energy is converted into_____.
- chemical energy
 - electrical energy
 - wind energy
 - solar energy
- 2936 In Factories, Agriculture which of the following is true?
- mechanical energy is converted into mechanical energy
 - chemical energy is converted into electrical energy
 - electrical energy is converted into mechanical energy

- d. solar energy is converted into electrical energy
- 2937 The direction of force produced due to current carrying conductor placed in magnetic field is found out by_____.
- Fleming's right hand rule
 - Fleming's left hand rule
 - Faradays law
 - Screw rule
- 2938 An electromechanical energy conversion device is one which_____.
- converts mechanical energy into electrical energy
 - converts electrical energy into mechanical energy
 - solar energy into electrical energy
 - Both (a) and (b)
- 2939 Which of the following is a medium via the electromechanical energy conversion takes place?
- magnetic field
 - electrical field
 - Both (a) and (b)
 - none of the above
- 2940 When the conversion place from electrical to mechanical form, the device is called_____.
- generator
 - motor
 - dynamo
 - transformer
- 2941 A device is called generator when_____.
- wind energy is converted into electrical energy
 - Solar energy is converted into electrical
 - mechanical energy is converted into electrical energy
 - hydro energy is converted into mechanical energy
- 2942 All circuits are made up of combination of_____.
- Resistance R
 - Capacitance C
 - Inductance L
 - All of the above
- 2943 What is the phase difference if ac circuit consist only resistance?
- 45°
 - Zero
 - 90°
 - 270°
- 2944 Which of the following represent Ohm's law for a purely resistive circuit?
- $V = IR$
 - $I = VR$
 - $R = VI$
 - $V = I/R$
- 2945 In a circuit with resistance only the voltage and current are_____.
- out of phase
 - leading
 - lagging
 - in phase
- 2946 In a circuit the voltage is counter balanced by the_____.
- voltage rise
 - voltage drop
 - e.m.f. induce
 - all of the above
- 2947 What is the power factor of a circuit of purely inductive?
- leading
 - lagging
 - unity
 - fluctuate between leading and lagging
- 2948 The opposition of inductance to flow of alternating current is known as_____.
- induced e.m.f.
 - inductance
 - inductive reactance
 - impedance
- 2949 Which of the following is/are correct for inductive reactance?
- it is denoted by the symbol X_L

- b. It is measured in ohms
 c. It is written as $X_L = V/I$
 d. All of the above
- 2950 Following equation gives the relation of Ohm's law for purely inductive circuit.
 a. $V = XI$
 b. $V = X/I$
 c. $V = X_L I$
 d. $I = X_L V$
- 2951 The voltage drop across the inductance L is called _____.
 a. reactive voltage, V_x
 b. inductive voltage, V_L
 c. resistive voltage, V_R
 d. none of the above
- 2952 Calculate inductive reactance at 1.5 MHz of coil has an inductive reactance of 25 mH and negligible resistance?
 a. 235600 ohm
 b. 235.60 ohm
 c. 23560.00 ohm
 d. 2356.00 ohm
- 2953 The reactance offered by inductance to pure dc voltage of current _____.
 a. infinity
 b. zero
 c. tends to zero
 d. negative
- 2954 A pure inductor is equivalent to a _____.
 a. short circuit
 b. open circuit
 c. either (a) or (b)
 d. not defined
- 2955 The average power consumed or supplied to a pure inductor connected in ac circuit is _____.
 a. infinite
 b. zero
 c. depend on connected inductive load
 d. depend upon time duration of connected load
- 2956 Impedance of purely inductive circuit is expressed by _____.
 a. $Z = R + jX$
 b. $Z = jX$
 c. $Z = R$
 d. $Z = jX + C$
- 2957 In purely inductive circuit $X = X_L$ because of _____.
 a. the resistive part is infinite
 b. the resistive part is zero
 c. the inductive part is zero
 d. inductive part is infinite
- 2958 The inductive reactance X_L depends directly on _____ of the voltage.
 a. frequency
 b. angular momentum
 c. acceleration
 d. magnitude
- 2959 What is the phase difference between the voltage and current of ac circuit consist only capacitor?
 a. 90°
 b. 45°
 c. 180°
 d. 270°
- 2960 In a purely capacitive circuit current _____ voltage by _____.
 a. lags, 90°
 b. leads, 90°
 c. in phase
 d. out of phase
- 2961 The _____ is defined as the opposition offered by a purely capacitive circuit to the flow of sinusoidal current.
 a. capacitive reactance
 b. capacitance
 c. capacitive inductance
 d. capacitor
- 2962 Capacitive reactance is measured in
 a. Henry
 b. Farad
 c. Ohms
 d. Weber

- 2963 Which of the following represent ohm's law for purely capacitive circuit?
- $V = X_c I$
 - $v = XI$
 - $V = I$
 - $X_c = I/V$
- 2964 The part of the supply voltage which charges the capacitor is known as_____.
- voltage drop V_R
 - voltage rise V
 - capacitive voltage drop V_c
 - capacitive voltage rise V_{cr}
- 2965 What is impedance?
- To defined a combination of R, X_L, X_c
 - To defined a combination of X_L, X_c
 - To defined a combination of R, X_L
 - To defined a combination of R, X_c
- 2966 The unit of impedance (Z) is_____.
- Weber per meter
 - Henry per meter
 - Ohm per meter
 - Ohm
- 2967 Which of the following expression is/are correct?
- $X_c = 1/2\pi fC$
 - $X_c = 1/\omega C$
 - Both (a) and (b)
 - $X_c = 1/2fC$
- 2968 Consider a RL series circuit, the current
- lags the applied voltage by 0° to 180°
 - lags the applied voltage by 0° to 90°
 - leads the applied voltage by 0° to 90°
 - lags the applied voltage by 45° to 90°
- 2969 Which of the following expression is correct for impedance of RL series circuit?
- $Z = R+jX$
 - $Z = R+j0$
 - $Z = R-jX$
 - $Z = R+jXL$
- 2970 The impedance can be expressed as_____.
- $Z = jX$
 - $Z = R+jX$
 - $Z = R+X$
 - $Z = R-jX$
- 2971 The expression of instantaneous power in ac circuit is given by_____.
- $p = v i$
 - $p = VI$
 - $p = v i \cos\phi$
 - $P = V_m I_m \sin\phi$
- 2972 In ac circuit power is consumed_____.
- only in capacitance
 - only in inductance
 - only in resistance
 - all of the above
- 2973 A 220 V bulb is connected to 220 V , 5 Hz source. What will happen?
- bulb glow intermittently
 - bulb damaged
 - does not glow
 - Constantly glow
- 2974 Which of the following is reciprocal of impedance?
- capacitance
 - Admittance
 - inductance
 - reactance
- 2975 The unit of admittance is_____.
- mho
 - Farad
 - Siemens
 - ohm per meter
- 2976 In ideal capacitor and inductor has _____.
- resistance and dissipates energy
 - no resistance and no energy is dissipated
 - only resistance and no energy is dissipated

- d. no resistance and dissipates energy
- 2977 In practical L, dissipates of energy is due to _____.
- its winding resistance
 - due to hysteresis losses
 - due to eddy current losses
 - Both (a) and (b)
- 2978 The apparent power is measured in _____.
- Wh
 - VA
 - VAR
 - I^2R
- 2979 Which of the following is/are correct for real power?
- real power = $EI \cos\phi$
 - it is expressed in watt
 - $EI \sin\phi$
 - Both (a) and (b)
- 2980 The unit of reactive power is _____.
- VAR
 - WAR
 - VA
 - Watt hour
- 2981 Reactive power is given by _____.
- Apparent power $\times \sin\phi$
 - Apparent power = $EI \sin\phi$
 - Both (a) and (b)
 - apparent power = $EI \cos\phi$
- 2982 Power factor is defined as _____.
- the ratio of resistance to impedance
 - cosine of angle between voltage and current
 - The ratio of real power to apparent power
 - all of the above
- 2983 The value of power factor _____.
- always more than unity
 - can never more than unity
 - always less than unity
 - always unity
- 2984 The power factor is _____.
- leading
 - lagging
 - unity
 - all of the above and depend on type of load
- 2985 Real power is also called _____.
- Active power
 - True power
 - Imaginary power
 - Both (a) and (b)
- 2986 Reactive power is also called _____.
- Apparent power
 - Imaginary power
 - Firm power
 - Reserve power
- 2987 What is the reason of low power factor?
- It is due large inductive load such as motor
 - It is due to capacitive load
 - It is due to resistive load
 - all of the above
- 2988 The average power supplied R-L circuit is equal to _____.
- power consumed by inductor only
 - power consumed by resistor only
 - power consumed by both inductor and resistance
 - all of the above
- 2989 In L-R series circuit the power factor is _____.
- leading
 - lagging
 - unity
 - any of the above
- 2990 Domestic consumers are supplied with _____ obtained from _____.
- three phase; three phase three wire system
 - single phase; three phase four wire system
 - single phase; three phase three wire system

- d. single phase; two phase three wire system
- 2991 Lighting and heating loads are usually connected between_____.
- any one of the phase and neutral
 - any one of the phase and line
 - any one of the line and neutral
 - all the line and neutral
- 2992 Depending upon the nature of load, the current will be_____with respect to the corresponding voltages.
- in phase
 - lagging
 - leading
 - all of the above
- 2993 The three phase voltage are displaced by_____radians from each other
- π
 - $\pi/2$
 - $2\pi/3$
 - $\pi/3$
- 2994 The vector addition of three phase voltages at any instant is
- 400 V
 - 230 V
 - 415 V
 - 0
- 2995 The phase voltages are the voltages measured with respect to_____.
- load reference
 - neutral point
 - line
 - any of the above
- 2996 The standard supply frequency in India is_____Hz.
- 49.5
 - 50
 - 50.5
 - all of the above
- 2997 Following instrument is used to measure the power in single or three phase.
- voltmeter
 - ammeter
 - Wattmeter
 - energy meter
- 2998 The current coil of wattmeter is connected in_____with the load
- parallel
 - series
 - series-parallel
 - any of the above
- 2999 The current coil has_____.
- small resistance
 - large cross sectional area
 - small number of turns
 - all of the above
- 3000 The voltage coil of the wattmeter is_____.
- always connected across the supply
 - also called pressure coil
 - resistance is large
 - all of the above
- 3001 The voltage or pressure coil is made of_____.
- thin wire with large number of turns
 - thin wire with small number of turns
 - thick wire with large number of turns
 - thick wire with small number of turns
- 3002 The wattmeter reading is _____ to the_____of the angle between V_p and I_c .
- proportional; sine
 - proportional; cosine
 - inversely; cosine
 - inversely; sine
- 3003 The wattmeter reading is given by_____.
- $W = V_{ph} I_{ph} \sin\phi$
 - $W = V_L I_L \cos\phi$
 - $W = V_{ph} I_{ph} \cos\phi$
 - $W = V_L I_L \sin\phi$

- 3004 The wattmeter directly reads the_____.
- active power
 - true power
 - real power
 - all of the above
- 3005 The power measurement of three phase ac circuit cab be using which of the following methods?
- Two wattmeter method
 - One wattmeter method
 - Three wattmeter method
 - all of the above
- 3006 A motor is machine that converts_____.
- mechanical energy into wind energy
 - electrical energy into mechanical energy
 - mechanical into mechanical energy
 - electrical energy into pressure energy
- 3007 Which one is operated in more protected locations?
- generator
 - motor
 - mechanical engine
 - all required same protection
- 3008 The construction of DC motor is similar to_____.
- mechanical engine
 - dc generator
 - ac generator
 - transformer
- 3009 When a conductor carrying current in a _____.
-
- electric field
 - electrostatic field
 - magnetic field
 - electromagnetic field
- 3010 Direction of force of conductor carrying current in a magnetic field is found out by_____.
- Fleming's right hand rule
 - Fleming's left hand rule
 - Faraday's law
 - Ampere's law
- 3011 In case of motor, the induced e.m.f. is known as_____.
- armature reaction
 - back e.m.f.
 - reactance voltage
 - all of the above
- 3012 The back e.m.f. opposes the_____.
- terminal voltage
 - induced e.m.f.
 - applied voltage
 - circulating current
- 3013 The back e.m.f. induced in motor is_____.
- due to motor action
 - due to generator action
 - due to engine
 - all of the above
- 3014 The main aims of the_____is to check that the machine received is in good conditions and are as per our requirements.
- inspection
 - installation
 - testing
 - commissioning
- 3015 Inspection is all about_____.
- creating a proper foundation
 - Overall observation (superefficient)
 - Testing equipment
 - installation planning
- 3016 What is/are included in the inspection process?
- to check received machine is as per requirement (ordered)
 - to check received machine is in good condition (no damaged)
 - to check received machine auxiliaries, parts etc are ok or not
 - All of these
- 3017 After the inspection at the site, you found everything is in good condition. What is/are the reason behind that?

- a. Proper care is taken by the manufacturer
 b. proper packages
 c. Good transportation
 d. All of these
- 3018 Maximum damaged to the machinery happen during_____.
- a. inspection
 b. manufacturing
 c. transportation
 d. commissioning
- 3019 When inspection at the site is carried out?
- a. after installation
 b. after commissioning
 c. after un-loading
 d. after testing
- 3020 Which of the following precautions must be observed during handling?
- a. Use hook, don't use shaft or other body parts
 b. Don't lift the machine, keep it balanced
 c. Don't drag the machine or roll it on the floor
 d. All of these
- 3021 Which of the following are the primary objectives during Un-packing of Machine?
- a. packing must be checked thoroughly
 b. Following the instructions on the packages written by the seller/factory
 c. Report any damage immediately to the seller/factory for the claim.
 d. All of these
- 3022 What will you do if you found a damaged machine during Inspection?
- a. Repair the damage
 b. Report any damage immediately to the seller/factory for the claim.
 c. test the machine that it can run with the damage
- d. return the machine immediately to the seller/factory
- 3023 Which of the following required during un-packing and inspection?
- a. Machine specification with parts detail and diagram
 b. The planning and availability of handling tool
 c. Skilled worker of handling
 d. All of these
- 3024 At which stage inspection is carried out?
- a. before Un-packing
 b. after Un-packing
 c. before and after Un-packing
 d. At the time of installation
- 3025 In which of the following condition required for the storage of Electrical Equipment?
- a. The machine not required immediately
 b. The foundation of the machine is not ready
 c. The machine full assembly not arrived
 d. All of these
- 3026 Which is the right place (area) to store electrical machine?
- a. airy and moisture-free environment
 b. clean and visible are
 c. specious to put or to lift
 d. All of these
- 3027 Which of the following should be avoided during storage of electrical machine?
- a. Temperature (not lower than 15 °C & Higher than 55 °C)
 b. Mud-floor
 c. Large ventilation
 d. All of these
- 3028 Following are the _____ conditions for the storage of Electrical Equipment if its _____in storage area. (i) Direct sun-light, (ii) Rain water, (iii) Gases, (iv) Dust, (v) Smoke

- a. Ideal, not entering
b. Ideal, entering
c. Ideal, partially entering
d. Practical, entering
- 3029 We should avoid storage of electrical equipment where is_____.
- a. gas cylinders
b. explosive material & chemicals
c. batteries
d. all of these
- 3030 Who should not be entered in the storage area?
- a. unauthorized person
b. cat, rat, dog etc
c. unauthorized person, cat, rat, dog etc
d. everyone
- 3031 What we need to do if vibrations receive from the nearby surroundings.
- a. rubber blocks
b. stop vibrations source
c. change storage location
d. it's ok, no need to do anything
- 3032 If the storage place is damp, then provide proper_____in the room.
- a. cooler
b. heaters
c. silica gel
d. rubber blocks
- 3033 Which of the following activity justify the good storage system?
- a. Provide sufficient distance between the machine for proper handling
b. Avoid keeping the machine idle for a long period and checked periodically by a responsible person on duty
c. The proper register must be maintained for machined IN and machine OUT and balance machine records
d. All of these
- 3034 Which of the following is/are the basic requirements of foundations?
- a. Horizontal leveling
b. Rigidity
c. Freedom from vibration
d. All of these
- 3035 For bigger machine generally supplier provides drawing and guideline instructions for the _____.
- a. foundation
b. inspection
c. transportation
d. All of these
- 3036 Foundation comprises of_____.
- a. Cement concrete
b. Bed plate
c. Template (wooden) to guide foundation bolts at the proper position to suit foundation plate holes.
d. All of these
- 3037 Which of the following information is provided in the Instruction manual?
- a. Installation procedure
b. Circuit diagram, Wiring and connection
c. Foundation details
d. All of these
- 3038 Which of the following information is provided in the Instruction manual?
- a. Protection
b. Troubleshooting
c. Faults and remedial majors to be taken
d. All of These
- 3039 Which of the following information is provided in the Instruction manual?
- a. storage, Drying out and Earthing procedure
b. Bearing care, Lubrication schedule and Gearbox details
c. General maintenance instructions and schedule
d. All of these

- 3040 Which of the following devices and tools required for loading / unloading electrical machines?
- lifting (hosting) device
 - shifting (transporting) device
 - fixing tool
 - All of these
- 3041 The hoisting machine is intended either for _____.
- raising & lowering
 - travel horizontally
 - turn around
 - All of these
- 3042 Which of the following is/are the components of hoisting equipment?
- Chain and Ropes
 - Pulleys, pulley system, sprockets and drums
 - Transmission components, axle shafts, bearings, clutches
 - All of these
- 3043 Which of the following is/are the units of hoisting equipment?
- Stopping and braking devices
 - Load handling, attachment, accessories etc
 - Drives & Control devices
 - All of these
- 3044 Chain/steel wire rope slings are made from _____ with eyes and hooks.
- welded chains
 - wire ropes
 - welded chains or wire ropes
 - Steel Road
- 3045 _____ used for suspension or with long shaped grips for the object to be lifted.
- Chain/steel wire rope slings
 - Rope
 - belt
 - all of these
- 3046 Pulley system is a combination of several _____ pulleys.
- movable and fixed
 - movable only
 - fixed only
 - Chain only
- 3047 Multiple pulley system with four parts is used to carry loads up to _____ tons.
- 5
 - 15
 - 25
 - 50
- 3048 How we can increase the lifting capacity of the pulley system up to 75 tons.
- increasing the parts
 - decreasing the parts
 - increasing the rope strength
 - none of these
- 3049 Which lifting device used to raise the equipment for small height while shifting or temporary maintenance or foundation work?
- Jack
 - Pulley
 - Hoist
 - Crane
- 3050 _____ are useful for material handling in the electrical maintenance shop.
- Trolleys
 - Jacks
 - Pulleys
 - Cranes
- 3051 Nowadays _____ are useful for material handling in electrical maintenance shop.
- solar operated vehicles
 - battery-operated vehicles
 - Cranes
 - Hoist
- 3052 Electrical machines of small and medium rating are handled by attaching the _____ to the eye bolt provided on the machine.
- Pulleys
 - cranes
 - sling rope
 - Jacks

- 3053 Power Transformers are lifted, handled with the help of _____.
- Chains
 - cranes
 - Jacks
 - Pulleys
- 3054 Which precautions must be taken while handling lifting devices?
- Work should be carried out by the group authorized persons
 - Wear proper PPE and observe proper safety precautions and rules
 - Check the load is properly lunge and don't allow standing anybody under a lifted load.
 - All of these
- 3055 Which precautions must be taken while handling lifting devices?
- When the load is applied to the pulley block, none of the turns of the received rope should touch to each other and the block should hang truly vertical.
 - Check the braking device, load-bearing chain and running chain sprocket are in a fit working condition.
 - Hoists have the readable labels as "up", "down", "forward", "reverse" etc. and pressing the buttons there is a perfect contact of operation.
 - All of these
- 3056 Which of the following tools is/are used for Repairs and Maintenance?
- Bearing Puller
 - Feeler Gauge
 - Dial Test Indicator
 - All of these
- 3057 Which of the following tools is/are used for Repairs and Maintenance?
- Spirit Level
 - Megger and Earth Tester
 - Growler
 - All of these
- 3058 Which of the following tools is used to remove bearing sets from a rotating machine shaft or from a blind bearing hole?
- Feeler Gauge
 - Bearing Puller
 - Bearing Mounter
 - Spirit Level
- 3059 Which of the following tools is used to measure the clearance between two parts (gap widths)?
- Feeler Gauge
 - Bearing Puller
 - Spirit Level
 - Growler
- 3060 Which of the following tools is used to measure the deflection of the arm?
- Feeler Gauge
 - Spirit Level
 - Dial test indicator
 - Growler
- 3061 _____ is a device consisting of a sealed glass tube partially filled with alcohol or other liquid, containing an air bubble whose position reveals whether a surface is perfectly level.
- Spirit Level
 - Spirit Level
 - Feeler Gauge
 - Growler
- 3062 Which of the following device is used to check continuity, short circuit and approximate high value of resistant (in M Ω)?
- Megger
 - Earth Tester
 - Ohm Meter
 - Insulation Tester
- 3063 The instrument used for measuring the resistance of the earth is known as _____.
- Megger
 - earth tester
 - Ohm Meter

- d. Insulation Tester
- 3064 What is the difference between megger and earth tester?
- measuring principle is different
 - measuring quantity is different
 - measuring range is different
 - All of these
- 3065 Megger and Earth tester having a _____ and _____ terminal leads respectively for the measurement purpose.
- 3, 3
 - 2, 2
 - 2, 4
 - 2, 3
- 3066 What is common between Megger and Earth Tester?
- Same Construction
 - Same Working principle
 - Same Application
 - All of these
- 3067 Following instrument are known as _____ instrument. 1. Wire Gauge, 2. Current Transformer, 3. Potential Transformer 4. Multimeter
- Measuring
 - Testing
 - Calibrating
 - All of these
- 3068 Multi-meter is basically a _____ instrument.
- PM
 - MI
 - PMMC
 - Induction type
- 3069 How Multimeter is different than Megger?
- can measure the continuity
 - can measure the resistance
 - can measure the numbers of different quantities
 - work on DC supply
- 3070 _____ is the process of aligning two or more shafts with each other to within a tolerated margin.
- Shaft alignment
 - Shaft balancing
 - Shaft Coupling
 - All of these
- 3071 What is the main goal of the Shaft Alignment?
- connect the motor to the driven equipment
 - efficient transmission of power from the motor to the driven equipment
 - create speed variation from the motor to the driven equipment
 - All of these
- 3072 The centerlines of the motor and the driven equipment shafts are not in line with each other are known as _____.
- Incorrect Coupling
 - parallel coupling
 - Incorrect alignment
 - parallel alignment
- 3073 Misalignment between the motor and driven equipment produces _____.
- excessive noise & vibration in the machines
 - excessive temperature in coupling & bearing of the machines
 - premature failure of the bearing, coupling, & shaft of the machines
 - All of these
- 3074 How many types of misalignment are there in the motor coupling?
- 1
 - 3
 - 5
 - 4
- 3075 Which type of misalignment is justified with the following statement? "If the centerlines of the motor and the driven equipment shafts were to be extended, they would cross each other, rather than

- superimpose or run along a common centerline.”
- Angular misalignment
 - Parallel misalignment
 - Combination misalignment
 - All of these
- 3076 Which type of misalignment is justify with the following statement? IF the two shaft centerlines are parallel, but not in the same line. as shafts may be offset horizontally (displaced to the left or right), vertically (positioned at different elevations), or both.
- Angular misalignment
 - Parallel misalignment
 - Combination misalignment
 - None of these
- 3077 Which type of misalignment is justified with the following statement? “If the centerlines of the motor and the driven equipment shafts were to be extended, they would neither cross each other nor superimpose or run along a common centerline.”
- Angular misalignment
 - Parallel misalignment
 - Combination misalignment
 - None of these
- 3078 What are the probable reasons for misalignment after the alignment processes successfully carried out on the newly installed machine?
- Change in foundation settling due to material characteristics
 - insufficient bolt tightening
 - bearing wear & shaft misalignment due to overload
 - All of these
- 3079 Rigid or flexible couplings are the type of _____ couplings.
- Direct Coupling
 - Indirect Coupling
 - Direct and Indirect Coupling
 - Belt Coupling
- 3080 What are the advantages of flexible coupling over the rigid coupling?
- tolerate small amounts of misalignment
 - reduce vibration transmitted from one piece of equipment to another
 - insulate the driven equipment shaft against stray electrical currents
 - All of these
- 3081 Which of the following is/are alignment equipment?
- dial indicators
 - laser alignment tools
 - dial indicators & laser alignment tools
 - Shaft Aligner
- 3082 Industrial safety management is the branch of management which is concerned with _____ hazards from the industries.
- Reducing
 - Controlling
 - Eliminating
 - All of these
- 3083 Which of the following is an indirect cost of the accident?
- Money paid for the treatment of the worker
 - Cost of lost time of the injured worker
 - Compensation paid to the worker
 - All of these
- 3084 Which of the following is a direct cost of the accident?
- Money paid for the treatment of the worker
 - Compensation paid to the worker
 - Cost of lost time of the injured worker
 - Money paid for the treatment and Compensation paid to the worker
- 3085 Which of the following is(are) physical hazard agent(s)?
- Falls
 - Electricity
 - Inhalation

- d. All of these
- 3086 Checklist for Job Safety Analysis (JSA) consists of
- Work area, material, machine, tools
 - Men, machine, material, tools
 - Men, machine, work area, tools
 - Men, work area. Material, tools
- 3087 Which of the followings is/are used for Safety and/or health sign?
- signboard
 - a colour
 - acoustic signal
 - All of these
- 3088 Which of the following is/are the type of sign used in safety signboard?
- Prohibition & Warning Sign
 - Emergency & First Aid Sign
 - Mandatory Sign
 - All of these
- 3089 Which colour is used to indicate the Prohibition sign and Danger Alarm?
- Red
 - Yellow Amber
 - Green
 - Blue
- 3090 Which colour is used to indicate the Warning sign?
- Red
 - Yellow Amber
 - Green
 - Blue
- 3091 Which colour is used to indicate the Mandatory sign?
- Red
 - Yellow Amber
 - Blue
 - Green
- 3092 Which colour is used to indicate the Emergency escape and First Aid sign?
- Red
 - Yellow Amber
 - Blue
 - Green
- 3093 Which of the following colour is used for radiation hazard?
- Red
 - Orange
 - Green
 - Purple
- 3094 Class-A fire consists of fire due to_____.
- Wood
 - Oil
 - Transformer
 - Chemical
- 3095 Water is used to extinguish_____.
- Class-A fires
 - Class-B fires
 - Class-C fires
 - All of these
- 3096 The following class of fire occurs in electrical equipment_____.
- Class-A fires
 - Class-B fires
 - Class-C fires
 - All of these
- 3097 The following extinguisher is suitable for cotton or other textile fire
- Water
 - Soda acid
 - Foam
 - Dry chemicals
- 3098 Who is responsible for the accident?
- Management
 - Worker
 - Work Environment and Condition
 - All of these
- 3099 A safety programme consists of_____.
- Three E's
 - Four E's
 - Five E's
 - Six E's
- 3100 Foam is the best suited to extinguishing_____ fire.
- Oil or Flammable liquid
 - Wood

- c. Electric
d. All of these
- 3101 The only thing keep you safe consistently is_____.
- a. Personal Protective Equipment
b. Safety Manager
c. Warning Signboard
d. Your Attention and Attitude towards safety
- 3102 What is the primary concern during the event of a fire?
- a. Personal Safety
b. Co-workers Safety
c. Company Property
d. None of these
- 3103 Who will ensure that you are using proper PPE (Personal Protective Equipment)?
- a. You
b. Your Co-Worker
c. Your Safety Management
d. Company Owner
- 3104 If found any difficulty in PPE on wearing it, When you will ask your safety supervisor?
- a. When you wear it
b. After a few hours
c. when you finished your work
d. After a few days
- 3105 At which stage, Safety management is essential to avoid loss of life and property caused by electrical accidents?
- a. During the construction
b. During commissioning
c. During operation & Maintenance
d. All of these
- 3106 The minimum distance provided between two conducting points by air/gas/oil is Known as _____
- a. Clearances
b. Creepages
c. Clearances and Creepages
d. All of these
- 3107 Electrical clearances are provided between_____.
- a. between Phases
b. between Phases & Earth
c. Between Work section and Live parts
d. All of these
- 3108 A clearance is/are provided _____.
- a. to prevent flashover
b. to increase safety
c. to follow the standard
d. All of these
- 3109 Minimum Clearance provided between phases in the air for 11 kV system is_____mm
- a. 140
b. 175
c. 178
d. 229
- 3110 Minimum Clearance provided between phases and earth in the air for 11 kV system is_____mm
- a. 140
b. 175
c. 178
d. 229
- 3111 _____distance is the shortest distance between two metallic parts along with the surface of the solid insulator.
- a. Clearances
b. Creepage
c. Clearances and Creepages
d. Safety
- 3112 Which of the following is/are influenced by the Creepage distance?
- a. surface leakage currents & flashover
b. Voltage Level
c. degree of atmosphere pollution
d. All of these
- 3113 For heavily polluted industrial areas _____Creepage distances are recommended (in terms of mm/kV)
- a. higher

- b. lower
c. same
d. not depends on pollution
- 3114 What do we need to increase if the voltage level of the system increases?
a. Clearances
b. Creepage
c. Clearances and Creepages
d. Maintenance
- 3115 What do we need to increase if the pollution level surrounds the system increase?
a. Clearances
b. Creepage
c. Clearances and Creepages
d. Maintenance
- 3116 What are the reasons for Accidents in Plant?
a. Working without proper PPE (Personal Protective Equipments)
b. Overconfidence
c. improper Mental and physical condition of the worker
d. ALL of these
- 3117 What are the reasons for Accidents in Plant?
a. Instructions not been observed faithfully
b. Poor judgment
c. Negligence and carelessness of the other persons
d. All of these
- 3118 Electric Shock is sudden stimulation of the nervous system of the human body by _____ a part of the body.
a. a flow of electric current through
b. a voltage across
c. stress developed
d. None of these
- 3119 What are the followings which defines Primary electric Shock?
a. higher magnitude of shock current
b. produces server physiological harm
- c. Cause Fibrillation (irregular heartbeat) & Respiratory tetanus (a continuous contraction of the muscle)
d. All of these
- 3120 What are the followings which defined Secondary electric Shock?
a. the low magnitude of the current
b. hair raising & tickling sensation
c. involuntary muscle reaction
d. All of these
- 3121 Shock may occur, When part of the human body in _____.
a. Direct contacts with Phases or Phases and Earth
b. Direct contacts with the same phase at a different potential
c. Flashover involving part of the human body
d. All of these
- 3122 The severity of electric shock is/are depends on _____.
a. Magnitude (mA) & Rate of rise (mA/mS) of the current flowing through the body
b. Path of current through the body
c. Time duration of current flow through the body
d. All of these
- 3123 The typical resistance of the human body (Tip of the left finger and right-hand finger with dry skin) is
a. 1000 ohms
b. 100000 ohms
c. 10000000 ohms
d. 1500 ohms
- 3124 The typical resistance of the human body (Tip of the left finger and right-hand finger with wet skin) is
a. 1000 ohms
b. 100000 ohms
c. 10000000 ohms
d. < 1500 ohms
- 3125 The most dangerous place to use electrical equipment is?
a. outdoors

- b. indoors
c. near water
d. near other electrical equipment
- 3126 The safest ladder to use around electricity is?
- a. wood
b. fibre glass
c. aluminium
d. a step stool
- 3127 Which of the following is/are not good conductors of electricity
- a. Wood
b. Earth
c. Water
d. concrete
- 3128 The effects of an electrical shock on the body do not depend upon the _____.
- a. current magnitude
b. current path
c. current duration
d. body weight
- 3129 Injuries from electricity can include which of the following?
- a. electric shock that may or may not result in electrocution
b. falls
c. burns
d. all of these
- 3130 Electrical hazards include shock, electrical arcs and blasts, and _____ or faulty equipment.
- a. Double-insulated
b. Polished
c. Secure
d. Broken
- 3131 Avoid working in _____ conditions.
- a. Cold
b. Dry
c. Sunny
d. Wet
- 3132 _____ gives a stray current somewhere to go and keeps workers from becoming part of the current.
- a. De-energizing
b. Energizing
c. Grounding
d. Guarding
- 3133 Specially designed PPE for electrical work includes _____ insulating gloves, matting, blankets, and covers.
- a. Plastic
b. Steel
c. Rubber
d. Wood
- 3134 _____ tools are encased in plastic and prevent the user from getting electrocuted if the tool develops a short circuit.
- a. Corded
b. Green coloured
c. Grounded
d. Double-insulated
- 3135 _____ use caution when working near electricity.
- a. Always
b. Never
c. Rarely
d. Sometimes
- 3136 _____ all electrical equipment before use.
- a. Inspect
b. Clean
c. Label
d. Organize
- 3137 _____ electric shock current through body will only create mild sensation but no pain.
- a. below 10 mA
b. 10 mA to 15 mA
c. 15 mA to 20 mA
d. 20 mA to 40 mA
- 3138 _____ electric shock current through the body will create painful shock but muscles remain in control.
- a. below 10 mA
b. 10 mA to 15 mA
c. 15 mA to 20 mA
d. 20 mA to 40 mA