

CHAPTER 4: POWER GENERATOR / SOURCES: PRINCIPLE AND APPLICATIONS

1. A _____ is a group of cells that generates electric energy from their internal chemical reaction
A. battery
B. regulator
C. power supply
D. solar energy
2. Which of the following is the main function of a battery?
A. To provide a source of steady DC voltage to fixed polarity
B. To provide a source of steady dc voltage of variable polarity
C. To provide a source of variable dc voltage of fixed polarity
D. To provide a source of variable dc voltage of variable polarity
3. Volt is a unit of _____
A. electromotive force
B. energy
C. force
D. magneto motive force
4. A transformer will work on
A. ac only
B. ac as well as dc
C. dc only
D. pulsating dc
5. In a chemical cell current is the movement of
A. positive and negative ions
B. positive charges
C. positive ions only
D. negative ions only
6. What is the nominal output of an automotive battery having six lead acid cells in series?
A. 12V
B. 24V
C. 6V
D. 3V

7. The speed of a dc motor is
- A. directly proportional to flux per pole
 - B. inversely proportional to flux per pole**
 - C. inversely proportional to applied voltage
 - D. inversely proportional to armature current
8. low speed alternators are driven by
- A. hydraulic turbines**
 - B. steam turbines
 - C. steam engines
 - D. diesel engines
9. High speed alternators are driven by
- A. diesel engine
 - B. steam turbines**
 - C. hydraulic turbines
 - D. diesel engine
10. The common 9v flat battery for transistor radio has _____ cells connected ins series
- A. 12
 - B. 3
 - C. 6**
 - D. 9
11. For the same rating, the size of low speed alternator is _____ that of high speed alternator
- A. about the same as
 - B. less than
 - C. more than**
 - D. twice
12. Which of the following is not a secondary cell?
- A. Silver-zinc
 - B. Nickel-iron
 - C. Silver-oxide**
 - D. Lead-acid

13. Which of the following is not a primary cell?
- A. Carbon-zinc
 - B. Zinc-chloride
 - C. Edison cell**
 - D. Mercuric oxide
14. The brush voltage drop in a dc machine is about
- A. 0.1V
 - B. 2V**
 - C. 10V
 - D. 20V
15. Carbon brushes are used in a dc machine because
- A. carbon lubricates and polishes the commutator**
 - B. contact resistance is decreased
 - C. carbon is cheap
 - D. carbon is abundant
16. considered as the main types of battery
- A. Lithium cell and alkaline
 - B. Carbon-zinc dry cell and lead sulphuric wet cell**
 - C. Leclanche cell and carbon zinc
 - D. Voltaic cell and lithium cell
17. Which of the following is the main function of a dc motor?
- A. to generate power
 - B. to change mechanical energy to electrical energy
 - C. to change electrical energy to mechanical energy**
 - D. to change chemical energy to mechanical energy
18. Which motor has the best speed regulation?
- A. Series
 - B. Shunt
 - C. Commutatively compounded**
 - D. Differentially compounded

19. A method of converting chemical energy into electric energy by dissolving two different conducting materials in an electrolyte
- A. Battery
 - B. Cell
 - C. Voltaic cell**
 - D. Charging
20. A commutatively compounded motor does not run at dangerous speed at light loads because of the presence of
- A. shunt winding**
 - B. interpoles
 - C. series
 - D. compensating windings
21. DC shunt motors are used in those applications where _____ is required
- A. high starting torque
 - B. high no load speed
 - C. practically constant speed**
 - D. variable speed
22. Galvanic cell is the other name of
- A. voltaic cell**
 - B. primary cell
 - C. secondary cell
 - D. solar cell
23. For the same rating _____ motor has the highest starting torque
- A. shunt
 - B. differentially compounded
 - C. commutatively compound
 - D. series**
24. The voltage regulation of an alternator with a power factor of 0.8 lagging is _____ at unity power factor
- A. greater than**
 - B. the same as
 - C. smaller than
 - D. 100%

25. Which is the most suitable for punch presses?
- A. shunt motor
 - B. differentially compounded motor
 - C. series motor
 - D. commutatively compounded motor**
26. In a vacuum cleaner, _____ motor is generally used
- A. shunt
 - B. series**
 - C. commutatively compounded
 - D. differentially compounded
27. A type of secondary cell that can be recharged but with an electrolyte that cannot be refilled
- A. Sealed rechargeable cell**
 - B. Sealed secondary cell
 - C. Lealanche cell
 - D. Alkaline cell
28. Silver cadmium is secondary cell with a nominal open circuit voltage of
- A. 1.1V**
 - B. 1.2V
 - C. 1.5V
 - D. 1.35V
29. Which is a variable speed motor?
- A. series**
 - B. commutatively compounded
 - C. shunt
 - D. differentially compounded
30. The most commonly used method of speed control of a dc motor is by varying
- A. voltage applied to the motor
 - B. field strength**
 - C. effective number of conductors in series
 - D. armature circuit resistance

31. What gives the relative activity in forming ion charges for some of the chemical elements?
- A. Electrochemical series
 - B. Electrical series
 - C. Electromotive series
 - D. Both A and C above**
32. The ac armature winding of an alternator is
- A. always star connected**
 - B. star delta connected
 - C. generally delta connected
 - D. pi connected
33. The air gap in an alternator is _____ in an induction machine
- A. much shorter than
 - B. about the same as
 - C. much longer than**
 - D. one-half than
34. Nickel-iron cells is a secondary cell with a nominal open- circuit voltage output of 1.2 and is otherwise known as
- A. Leclanche cell
 - B. Galvanic cell
 - C. Voltaic cell
 - D. Edison cell**
35. A dc series motor is most suitable for
- A. cranes**
 - B. lathes
 - C. pump
 - D. punch presses
36. Which of the most suitable motor fro elevator
- A. Series
 - B. Differentially compounded
 - C. Shunt
 - D. Commutatively compounded**

37. The voltage output of a cell depends on
- A. its elements**
 - B. electromotive series
 - C. its electrodes
 - D. electrochemical series
38. The alternators driven by _____ do not have a tendency to hunt
- A. diesel engines
 - B. steam engines**
 - C. water turbines
 - D. prime movers
39. Damper windings are used in alternators to
- A. prevent hunting**
 - B. achieve synchronism
 - C. reduce wind age losses
 - D. reduce eddy current loss
40. Leclanche cell is the other name of
- A. lead acid cell
 - B. zinc chloride
 - C. carbon zinc cell**
 - D. mercuric cell
41. the primary leakage flux links
- A. primary winding only**
 - B. secondary winding only
 - C. both primary and secondary windings
 - D. neither primary nor secondary windings
42. Overheating of a dc motor is often due to
- A. insufficient end play
 - B. overloads**
 - C. loose parts
 - D. rough commutator

43. A small 9V battery might be used to provide power to
- A. an electric stove
 - B. an electronic calculator**
 - C. a personal computer
 - D. a radio transmitter
44. The frequency of the system with which several alternators are parallel can be increased by simultaneously _____ of all generators
- A. increasing the field excitation
 - B. decreasing the field excitation
 - C. increasing the speed of prime movers**
 - D. decreasing the speed of prime movers
45. A transformer is an efficient device because it
- A. is a static device**
 - B. uses capacitive coupling
 - C. uses inductive coupling
 - D. uses electric coupling
46. The amount of back emf of shunt motor will increase when
- A. the load is increased
 - B. the field is strengthened**
 - C. the field is weakened
 - D. the load is decreased
47. Three cells connected in series form a
- A. battery**
 - B. voltage divider
 - C. voltage multiplier
 - D. hybrid
48. What can be found in a transformer with open-circuit test?
- A. Copper losses
 - B. Turns ratio**
 - C. Total equivalent resistance
 - D. Total equivalent leakage resistance

49. Transformers having ratings less than 5kva are generally
- A. oil cooled
 - B. water cooled
 - C. natural air cooled**
 - D. self cooled
50. An example of rechargeable dc source is an/a
- A. lithium battery
 - B. photovoltaic cell
 - C. optoisolator
 - D. lead acid battery**
51. The voltage of the bus bar to which several alternators are paralleled may be raised by simultaneously _____ of all alternators
- A. increasing field excitation**
 - B. decreasing field excitation
 - C. increasing input to prime movers
 - D. decreasing input to prime movers
52. The rating of an alternator is expressed in
- A. kW
 - B. kVA**
 - C. HP
 - D. KVAR
53. Cumulatively compounded motors are used in applications where _____ is required
- A. variable speed
 - B. poor speed regulation
 - C. sudden heavy loads for a short duration**
 - D. constant speed
54. Which motor never use belt connected loads?
- A. Series**
 - B. Commulatively compounded
 - C. Shunt
 - D. Differentially compounded

55. A stand alone solar power system
- A. relies on the electric utility at night
 - B. uses solar panels and batteries**
 - C. requires the use of dry cells
 - D. need a full wave rectifier
56. A transformer will have zero efficiency at
- A. full load
 - B. half full load
 - C. no load**
 - D. twice the load
57. The efficiency of a transformer will be at maximum when
- A. leakage reactance of the two windings are equal
 - B. resistance of the two windings are equal
 - C. copper loss is equal to constant loss**
 - D. copper loss is zero
58. The armature winding of a dc Machine is _____ winding
- A. an open circuit
 - B. a closed circuit**
 - C. partly open circuit and partly closed circuit
 - D. lap
59. The speed at which a 6 pole alternator should be drive to generate 50 cycles per second is
- A. 1500rpm
 - B. 500rpm
 - C. 1000rpm**
 - D. 1200rpm
60. A 12v battery is rated at 48ah. If it must deliver an average of 2.0a, how long will the battery last before it needs recharging
- A. 48hrs
 - B. 4hrs
 - C. 96hrs
 - D. 24hrs**

61. Connecting batteries of equal voltage in parallel
- A. multiplies the voltage available
 - B. increases the internal resistance
 - C. reduces the power available
 - D. multiplies the current available**
62. A storage battery in which the electrodes are grids of lead containing lead oxides that changes in composition during charging and discharging and the electrolyte is dilute sulfuric acid
- A. Leclanche battery
 - B. Nickel cadmium battery
 - C. Lead and battery**
 - D. Faure storage battery
63. The common dry cell, which is a primary cell having a carbon positive electrode and a zinc negative electrode in an electrolyte of sal ammoniac and a depolarizer
- A. Leclanche cell**
 - B. Faure storage cell
 - C. Lead acid cell
 - D. Lithium cell
64. The maximum flux produced in the core of a transformer is
- A. directly proportional to supply frequency
 - B. inversely proportional to supply frequency**
 - C. inversely proportional to primary voltage
 - D. inversely proportional to secondary voltage
65. A transformer is so designed that primary and secondary windings have
- A. loose magnetic coupling
 - B. tight magnetic coupling**
 - C. critical magnetic coupling
 - D. good electric coupling
66. Four carbon zinc cell in series will provide about
- A. 2Vdc
 - B. 6Vdc**
 - C. 9Vdc
 - D. 8Vdc

67. What refers to a method in which the charger and the battery are always connected to each other for supplying current to the load
- A. Continuous charging
 - B. Float charging**
 - C. Infinite charging
 - D. On line charging
68. A series motor designed to operate on dc or ac
- A. Shunt motor
 - B. Series motor
 - C. Universal motor**
 - D. Compound motor
69. Combination of ac motor, dc generator, and exciter to provide adjustable voltage dc power to a dc motor.
- A. Ward-Leonard system**
 - B. Half wave SCR adjustable voltage supply
 - C. Compound motor
 - D. Universal motor
70. A motor takes a large current at starting because
- A. the armature resistance is high
 - B. back emf is low**
 - C. back emf is high
 - D. shunt field is producing weak field
71. A series motor will over speed when
- A. the load is increased
 - B. the armature circuit is open
 - C. the field id opened
 - D. load is removed**
72. When the load on an alternator is increased, the terminal voltage increases if the load power factor is
- A. unity
 - B. leading**
 - C. lagging
 - D. zero

73. The efficiency of the turbo-alternator _____ with increase in speed
- A. decreases
 - B. remains the same
 - C. increases**
 - D. becomes 100%
74. What is the output of a lead acid cell?
- A. 2.1V**
 - B. 1.5V
 - C. 1.35V
 - D. 1.25V
75. One of the following is a false statement
- A. storage cell has a reversible chemical reaction
 - B. carbon zinc cell has unlimited shelf life**
 - C. lead acid cell is rechargeable
 - D. primary cell is not rechargeable
76. In an alternator, the effect of armature reaction is minimum at power factor of
- A. 0.866 lagging
 - B. 0.5 lagging
 - C. 0.866 leading
 - D. Unity**
77. For given number of poles (2) and armature conductors, a lap winding will carry _____ a wave winding
- A. more current than**
 - B. same current as
 - C. less current than
 - D. half the current than
78. An 8 pole duplex lap winding will have _____ parallel paths
- A. 8
 - B. 32
 - C. 4
 - D. 16**

79. To increase the voltage output, cells are connected in
- A. parallel
 - B. series-parallel
 - C. parallel-series
 - D. series**
80. To increase current capacity, cells are connected in
- A. parallel**
 - B. series
 - C. series- parallel
 - D. parallel- series
81. Two things which are same for primary and secondary of transformer are
- A. ampere turns and voltage per turn**
 - B. resistance and leakage reactance
 - C. current and induced voltage
 - D. number of turns and power
82. A transformer operates poorly at very low frequencies because
- A. permeability of core is increased
 - B. magnetizing current is abnormally high**
 - C. primary reactance is too much
 - D. permeability core is reduced
83. In an auto transformer, the primary and secondary are _____ coupled
- A. only magnetically
 - B. magnetically as well as electrically**
 - C. only electrically
 - D. directly
84. A storage battery in which the plates consist of lead antimony supporting grids covered with a lead oxide paste immersed in weak sulfuric acid
- A. Leclanche cell
 - B. primary battery
 - C. secondary battery
 - D. Faure storage battery**

85. Which of the following is a dry storage cell?
- A. Leclanche cell
 - B. Edison cell
 - C. Mercury cell
 - D. Nickel cadmium cell**
86. The field structure of a dc machine uses
- A. Salient pole arrangement**
 - B. Non salient pole arrangement
 - C. Silicon steel
 - D. Cast steel
87. Small Dc machines generally have _____ poles
- A. 4
 - B. 2**
 - C. 6
 - D. 8
88. The armature of a dc machine is laminated in order to reduce
- A. Eddy current loss**
 - B. Copper loss
 - C. Hysteresis loss
 - D. Frictional loss
89. To produce an output of 7.5v, how many carbon zinc cells are connected in series?
- A. 4
 - B. 5**
 - C. 6
 - D. 3
90. The demand for a large increase in torque of a dc series motor is met by a
- A. large decrease in current
 - B. large increase in speed
 - C. large decrease in speed**
 - D. small decrease in speed

91. As the load increases a, _____ motor will speed up
- A. series
 - B. commutatively compounded
 - C. shunt
 - D. differentially compounded**
92. The flux in the core of a single phase transformer is
- A. purely alternating one**
 - B. purely rotating one
 - C. partly alternating and partly rotating
 - D. constant
93. When the primary of a transformer is connected to a dc supply
- A. a primary draw small current
 - B. primary leakage reactance is increased
 - C. core losses are increased
 - D. primary may be burned out**
94. a constant voltage source has
- A. High internal resistance
 - B. minimum efficiency
 - C. minimum current capacity
 - D. low internal resistance**
95. If the excitation of an alternator operating in parallel with other alternators is increased above the normal value excitation of excitation its
- A. power factor becomes more lagging**
 - B. output current decreases
 - C. power factor becomes more leading
 - D. output kw decreases
96. This synchronous reactance of an alternator is generally _____ armature resistance
- A. 5 times smaller than
 - B. 10 – 100 times greater than**
 - C. 5 times greater than
 - D. 10 times smaller than

97. DC series motors are used in those applications where _____ required
- A. high starting torque**
 - B. low no load speed
 - C. constant speed
 - D. variable speed
98. A dc motor is still used in industrial applications because it
- A. is cheap
 - B. provides fine speed control**
 - C. is simple in construction
 - D. has no replacement
99. The stator of an alternator is wound for _____ on the rotor
- A. a more number of poles than
 - B. the same number of poles as**
 - C. less number of poles than
 - D. twice the number of poles
100. Why are carbon brushes preferable compared to copper brushes
- A. they have longer life
 - B. they have lower resistance
 - C. they are cheaper
 - D. they reduce sparking**
101. The synchronous reactance of an alternator _____ as the iron is saturated
- A. decreases**
 - B. remains the same
 - C. increases
 - D. becomes doubled
102. A 4 pole dc machine has magnetic circuits
- A. 2
 - B. 4**
 - C. 8
 - D. 6

103. The current in armature conductors of a dc machine is
- A. pure dc
 - B. ac**
 - C. pulsating dc
 - D. pure dc plus pulsating dc
104. The ac armature winding of an alternator operates at _____ the field of winding
- A. the same voltage as
 - B. much higher voltage than**
 - C. much lesser voltage than
 - D. half the voltage than
105. Why are the field poles and the armature of a dc machine laminated?
- A. to reduce the weight of the machine
 - B. to reduce eddy current**
 - C. to decrease the speed
 - D. to reduce armature reaction
106. The back emf or counter emf in a dc motor
- A. opposes the applied voltage**
 - B. aids the armature current
 - C. aids the supplied voltage
 - D. opposes the armature current
107. The synchronous reactance of an alternator is due to
- A. leakage flux
 - B. armature reaction**
 - C. dc field excitation
 - D. hysteresis loss
108. Back emf in a dc motor is maximum at
- A. no load**
 - B. half full load
 - C. full load
 - D. three fourth full load

109. The mechanical power developed in a dc motor is maximum when back emf is equal to _____ the applied voltage
- A. twice
 - B. one third
 - C. one half**
 - D. one fourth
110. The core type transformer is generally suitable for
- A. high voltage and small output**
 - B. low voltage and high output
 - C. high voltage and high output
 - D. low voltage and low output
111. The transformer that should never have the secondary open circuited when primary is energized is
- A. power transformer
 - B. auto transformer
 - C. voltage transformer
 - D. current transformer**
112. The field winding of an armature is _____ excited
- A. dc**
 - B. ac
 - C. both ac and dc
 - D. battery
113. The salient pole construction for field structure of an alternator is generally used for _____ machine
- A. 2 pole
 - B. 8 pole**
 - C. 4 pole
 - D. 6 pole
114. When the speed of a dc motor increases, its armature current
- A. increases
 - B. remains the same
 - C. decreases**
 - D. becomes infinite

115. The frequency of emf generated in an 8 pole alternator at 900 rpm is
- A. 50hz
 - B. 120hz
 - C. 60hz**
 - D. 240hz
116. In case of a 4 pole machine, 1 mechanical degree corresponds to _____ electrical degree
- A. 2**
 - B. 8
 - C. 4
 - D. 6
117. The torque developed by a dc motor is directly proportional to
- A. flux per pole x armature current**
 - B. armature resistance x applied voltage
 - C. armature resistance x armature current
 - D. flux per pole x applied voltage
118. AC machine in which the torque is produced by the interaction of currents in the stator and currents induced in the rotor by transformer action
- A. squirrel cage motor
 - B. stepper motor
 - C. synchronous motor
 - D. induction motor**
119. Machine in which torque is produced by the interaction of ac current in the stator and dc currents in the rotor turning synchronism
- A. synchronous motor**
 - B. induction motor
 - C. squirrel cage motor
 - D. stepper motor
120. The main drawback of a dc shunt generator is that
- A. terminal voltage drops considerably with load**
 - B. shunt field circuit has high resistance
 - C. generated voltage is small
 - D. it is expensive

121. DC machines which are subjected to abrupt changes of load are provided with
- A. interpole windings
 - B. compensating winding**
 - C. equalizers
 - D. copper brushes
122. The shaft torque in a dc motor is less than total armature torque because of _____ in the motor
- A. copper losses
 - B. iron and friction losses**
 - C. field losses
 - D. hysteresis loss
123. Armature reaction in a dc motor is increased
- A. When the armature current increases**
 - B. when the armature current decreases
 - C. when the field current increases
 - D. by interpole
124. An ideal transformer is one which
- A. has no losses and leakage reactance**
 - B. does not work
 - C. has the same number of primary and secondary turns
 - D. has the same primary and secondary voltage
125. If a power transformer is operated at very high frequencies then
- A. primary reactance is too much increased
 - B. primary will draw large power
 - C. core losses will be excessive**
 - D. core loss is negligible
126. With respect to the direction of rotation, interpoles on a dc motor must have the same polarity as the main poles
- A. ahead of them
 - B. in parallel with them
 - C. behind them**
 - D. beside them

127. The open circuit test on a transformer is always made on
A. low voltage winding
B. high voltage winding
C. either low or high voltage
D. neither low or high voltage
128. In the short circuit test in a transformer, _____ winding is generally short circuited
A. high voltage
B. low voltage
C. either low or high voltage
D. neither low nor high voltage
129. In a dc motor, the brushes are shifted from the mechanical neutral plane in a direction opposite to the rotation to
A. decreased speed
B. reduced sparking
C. increase speed
D. produce flat characteristics
130. The number of cycles generated in a 6 pole alternator in one revolution is
A. 3
B. 5
C. 6
D. 2
131. If the lagging load power factor of an alternator is decreased, the demagnetizing effect of the armature reaction
A. remains the same
B. is increased
C. is decreased
D. becomes infinite
132. In a very large dc motor with severe heavy duty, armature reaction effects are corrected by
A. using interpole only
B. using compensatory windings in addition to interpoles
C. shifting the brush position
D. fixing the brush position

133. The amount of copper in the primary is _____ that of the secondary
- A. about the same as**
 - B. smaller than
 - C. greater than
 - D. twice
134. The open circuit test on a transformer gives
- A. copper losses
 - B. iron losses**
 - C. friction losses
 - D. total losses
135. The speed of a _____ motor is practically constant
- A. commutatively compounded
 - B. differentially compounded
 - C. series
 - D. shunt**
136. The running speed of a dc series motor is basically determined by
- A. field excitation
 - B. armature resistance
 - C. load**
 - D. applied voltage
137. If the excitation of an alternator operating in parallel with other alternators is decreased, its
- A. power factor becomes more leading**
 - B. output kW will change
 - C. power factor becomes more lagging
 - D. power factor becomes unity
138. The distribution of load between two alternators operating in parallel can be changed by changing
- A. phase sequence
 - B. field excitation of alternators
 - C. driving torques of prime movers**
 - D. current direction

139. After a shunt motor is up to speed the speed may be increased considerably by
- A. increasing field circuit resistance
 - B. decreasing field circuit resistance**
 - C. increasing the armature circuit resistance
 - D. reducing the load
140. When the secondary of a transformer is short circuited, the primary inductance
- A. is decreased**
 - B. remains the same
 - C. is increased
 - D. becomes zero
141. For the same rating _____ motor has the least starting torque
- A. cumulatively compounded
 - B. shunt**
 - C. series
 - D. differentially compounded
142. The deciding factor in the selection of a dc motor for a particular application is its _____ characteristics
- A. speed torque**
 - B. torque armature current
 - C. speed armature current
 - D. speed
143. The rotor of a turbo alternator is made cylindrical in order to reduce
- A. eddy current loss
 - B. wind age loss**
 - C. hysteresis loss
 - D. copper loss
144. The disadvantage of a short pitched coil is that
- A. harmonics are introduced
 - B. waveform becomes non-sinusoidal
 - C. voltage round the coil is reduced**
 - D. voltage round coil is increases

145. The demand for a large increase in torque of a dc shunt motor is met by a
- A. large decreased in speed
 - B. large increased in current**
 - C. large increased in speed
 - D. small increased in current
146. For 20% increase in current, the motor that will give the greatest increase in torque is _____ motor
- A. shunt
 - B. series**
 - C. differentially compounded
 - D. commulatively compounded
147. What cell is used to detect infrared radiation, either its generated voltage or its change of resistance may be used as a measure of the intensity of the radiation?
- A. lead sulfide cell**
 - B. Faure storage cell
 - C. infrared cell
 - D. Leclanche cell
148. A galvanic cell resulting from difference in potential between adjacent on the surface of a metal immersed in an electrolyte
- A. NiCd cell
 - B. lead acid cell
 - C. local cell**
 - D. lithium cell
149. Which motor is used to start heavy loads?
- A. series**
 - B. differentially compounded
 - C. shunt
 - D. commulatively compounded
150. When load is removed, the motote that will run at the highest speed is the _____ motor
- A. shunt
 - B. commulatively compounded
 - C. series**
 - D. differentially compounded

151. The friction and wind age losses in a dc motor depends upon

- A. speed**
- B. armature current
- C. flux
- D. field and armature resistance

152. If a transformer core has air gaps then

- A. reluctance of magnetic path is decreased
- B. hysteresis loss is decreased
- C. magnetizing current is greatly increased**
- D. eddy current is increased

153. The effect of leakage flux in a transformer is to

- A. increase copper losses
- B. decrease copper losses
- C. cause voltage drop in the windings**
- D. reduce eddy current losses

154. The iron losses in a dc motor depend upon

- A. flux only
- B. both flux and speed**
- C. speed only
- D. temperature

155. The greatest percentage of power loss in a dc motor is due to

- A. wind age loss
- B. core loss
- C. copper loss**
- D. friction loss

156. Excessive sparking at the brushes may caused due to

- A. dirt on the commutator**
- B. misalignment of machine
- C. loose coupling
- D. worn bearings

157. The temperature rise of a transformer is directly proportional to
- A. apparent power**
 - B. leakage reactance
 - C. reactive power
 - D. true power
158. A graphical relation between the generated emf and the field current of a machine
- A. current generation curve
 - B. voltage generation curve
 - C. voltage current curve
 - D. magnetization curve**
159. Majority of alternators in use have
- A. revolving ac armature winding
 - B. stationary field type construction
 - C. revolving field type construction**
 - D. stationary ac armature winding
160. The stator of an alternator is identical to that of a
- A. dc generator
 - B. 1 phase induction motor
 - C. 3 phase induction motor**
 - D. Rosenberg generator
161. Excessive motor vibration is caused by
- A. too much brush tension
 - B. open armature coil
 - C. worn bearings**
 - D. bent shaft
162. Hot bearings of a dc motor may be caused by
- A. poor ventilation
 - B. loose coupling
 - C. incorrect voltage
 - D. lack of dirty lubricant**

163. Intermittent sparking at the brushes of dc motor may be caused due to
A. an open armature coil
B. loose coupling
C. intermittent load
D. incorrect voltage
164. When the load on a transformer is increased, the eddy current loss
A. is decreased
B. remains the same
C. is increased
D. becomes zero
165. The yoke of a dc machine is made of
A. silicon steel
B. aluminium
C. soft iron
D. cast steel
166. The armature of a dc machine is made of
A. silicon steel
B. cast steel
C. wrought iron
D. soft iron
167. The voltage per turn of the primary of a transformer is _____ the voltage per turn of the secondary
A. more than
B. the same as
C. less than
D. twice
168. The winding of the transformer with greater number of turns will be
A. high voltage winding
B. low voltage winding
C. either high or low voltage winding
D. high power

169. The coupling field between electrical and the mechanical systems of a dc machine is
- A. electric field
 - B. both electric and magnetic fields
 - C. magnetic field**
 - D. electromagnetic field
170. The real working Part of a dc machine is the
- A. commutator
 - B. armature winding**
 - C. field winding
 - D. stator
171. Which DC machines are the most common?
- A. 2 pole
 - B. 6 pole
 - C. 4 pole**
 - D. 8 pole
172. The core type transformer provides
- A. much longer magnetic pattern
 - B. lesser average length per turn
 - C. shorter magnetic path**
 - D. longer magnetic path
173. A machine with field excitation by both shunt and series windings
- A. complex machine
 - B. compound machine**
 - C. universal machine
 - D. shunt/ series machine
174. The armature winding of a dc machine is placed on the rotor to
- A. save iron
 - B. facilitate commutation**
 - C. reduce losses
 - D. reduce armature reaction

175. The yoke of a dc machine carries _____ pole flux
- A. one third of
 - B. two times of
 - C. one half of**
 - D. one fourth of
176. The greatest eddy current loss occurs in the _____ of a dc machine
- A. field poles
 - B. commutating process
 - C. yoke
 - D. armature**
177. The commutator pitch for a simplex lap winding is equal to
- A. number of poles of the machines
 - B. 1**
 - C. poles pairs
 - D. 2
178. In a simplex wave winding, the number of parallel paths is equal to
- A. number of poles in the machine
 - B. 2**
 - C. number of pair poles
 - D. 1
179. In a practical transformer, copper losses account for how many percent of the total losses?
- A. 75%
 - B. 25%
 - C. 85%**
 - D. 95%
180. By laminating the core of a transformer, _____ decreases
- A. leakage reactance
 - B. eddy current loss**
 - C. hysteresis loss
 - D. copper loss

181. The number of parallel paths in a simplex lap winding is equal to
- A. 2
 - B. number of poles**
 - C. number of pair poles
 - D. 1
182. In a dc machine the number of commutator segments is equal to
- A. number of conductors
 - B. number of coils**
 - C. twice the number of poles
 - D. twice the number of coils
183. A dc compound generator having full load terminal voltage equal to the no load generator voltage is called _____ generator
- A. under compounded
 - B. flat compounded**
 - C. over compounded
 - D. un compounded
184. The terminal voltage of a _____ generator vary widely with changes in load current
- A. series**
 - B. flat compounded
 - C. shunt
 - D. over compounded
185. The nature of armature winding of a dc machine is decided by
- A. front pitch
 - B. back pitch
 - C. commutator path**
 - D. number of coils
186. The voltage regulation of an alternator is larger than of a dc generator because of
- A. large armature resistance
 - B. large leakage reactance
 - C. complex effects of armature reaction**
 - D. small armature resistance

187. High voltage dc machines use what winding?
- A. Lap
 - B. wave**
 - C. either lap or wave
 - D. open circuit
188. In a lap winding, the number of the brushes required is equal to
- A. number of poles**
 - B. commutator pitch
 - C. number of pairs of poles
 - D. number of coils
189. What is the approximate efficiency of large transformer?
- A. 65%
 - B. 80%
 - C. 50%
 - D. 95%**
190. In a wave winding, the commutator pitch is approximately equal to
- A. pole pitch
 - B. thrice the pole pitch
 - C. twice the pole pitch**
 - D. half the pole pitch
191. A triplex wave winding will have _____ parallel paths
- A. 6**
 - B. 4
 - C. 2
 - D. 8
192. For a given dc generator, the generated voltage depends upon
- A. flux only
 - B. both speed and flux**
 - C. speed only
 - D. armature rotation

193. For the same rating, a dc machine has _____ an ac machine
- A. the same weight as
 - B. less weight than
 - C. more weight than**
 - D. half the weight than
194. Difference between the speed of a rotating magnetic field and the associated rotor
- A. split
 - B. salient pole
 - C. slip**
 - D. pull out torque
195. The field winding of a dc shunt machine usually carries _____ of the rated current of the machine
- A. 2% to 5%**
 - B. more than 20%
 - C. 15% to 20%
 - D. less than 0.5%
196. A separately excited dc generator is not used because
- A. it is costly
 - B. a separate dc source is required for field circuit**
 - C. voltage drops considerably with load
 - D. it is bulky
197. The effect of armature reaction is to
- A. decreased the total flux**
 - B. make the air gap flux uniform
 - C. increase the total flux
 - D. make the flux constant
198. In a dc generator armature reaction _____ pole tip
- A. weakens the flux at the trailing
 - B. weakens the flux at the leading**
 - C. strengthens the flux at the leading
 - D. strengthens the flux at the trailing

199. The greatest percentage of the heat loss in a dc machine is due to

- A. eddy current loss
- B. copper loss**
- C. hysteresis loss
- D. frictional loss

200. The size of a dc generator can be reduced by using

- A. lap winding
- B. high resistance winding material
- C. iron commutator
- D. magnetic material of high permeability**