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4th Sem. Elect., GE, Power Station Engg., Elect. & Eltx. Engg., Fire Tech. & Safety

Sub : Electrical Machines-I

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (10x1=10)

- Q.1** The transformer laminations are insulated from each other by (CO5)
a) Mica strip b) Thin coat of varnish
c) Paper d) Any of the above

Q.2 The direction of rotation of a D.C. series motor can be changed by (CO2)
a) Interchanging supply terminals
b) Interchanging field terminals
c) Either of (a) and (b) above
d) None of the above

Q.3 In a transformer the tapings are generally provided on (CO6)
a) Primary side b) Secondary side
c) Low voltage side d) High voltage side

Q.4 A y-y connected transformer can be connected in parallel to delta-delta connected transformer but not to (CO8).
a) Delta-star b) Star-delta
c) Star-y d) All of the mentioned

Q.5 If a D.C. motor is to be selected for conveyors, which motor would be preferred? (CO4)

- a) Series motor
 - b) Shunt motor
 - c) Differentially compound motor
 - d) Cumulative compound motor

Q.6 Which of the following statements is/are correct regarding the generation of EMF in rotating electrical machines in the armature winding? EMF is generated _____ . (CO1)

- a) by rotating armature windings through a magnetic field.
 - b) By rotating magnetic field with respect to the armature windings.
 - c) By designing the magnetic circuit to have variable reluctance with rotor rotation.
 - d) Any of the mentioned

Q.7 The transformer which is more feasible to use in the distribution ends should be . (CO8)

Q.8 Which of the following application requires high starting torque? (CO4)

- a) Lathe machine
 - b) Centrifugal pump
 - c) Locomotive
 - d) Air blower

Q.9 Which of the following does not change in an ordinary transformer? (CO5)

- a) Frequency
 - b) Voltage
 - c) Current
 - d) Any of the above

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- Q.10 Three units of single phase transformers and one single three-phase transformer rating _____. (CO5)
- Will be same for one rating
 - Can never be made same
 - May be same
 - None of the mentioned

Section-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 DC series motor is a _____ speed motor. (CO2)
- Q.12 What is back emf? (CO1)
- Q.13 _____ transformer has no losses? (CO5)
- Q.14 Transformer always rated in _____. (CO5)
- Q.15 Transformer has max efficiency at _____. (CO2)
- Q.16 Yoke of DC motor made of _____. (CO2)
- Q.17 Distribution transformers are designed for low _____ losses. (CO5)
- Q.18 Direction of torque depends upon the _____ of the torque angle. (CO2)
- Q.19 Inter poles are used for _____. (CO2)
- Q.20 Iron losses in a transformer consist of _____ and _____. (CO5)

Section-C

Note: Short answer type Question. Attempt any twelve questions out of fifteen Questions. (12x5=60)

- Q.21 Explain briefly the operation of a transformer and sketch phasor diagram on no-load. (CO5)
- Q.22 Explain the function of conservator tank. (CO5)
- Q.23 State the Faraday's law of electro magnetic induction. (CO1)

- Q.24 Define the voltage regulation of a transformer. Drive the expression for the voltage regulation for resistive load. (CO5)
- Q.25 Write down the effects of armature reaction in a DC generator. (CO1)
- Q.26 Explain buchholz relay. (CO5)
- Q.27 Illustrate the methods of excitation of DC machines. (CO3)
- Q.28 Compare DC generators and DC motors. (CO2)
- Q.29 What is an ideal transformer? Draw its no-load phasor diagram. (CO5)
- Q.30 Write a short note on cooling of three phase transformer. (CO9)
- Q.31 Write short notes on _____ (CO5)
- CT & PT
- Q.32 Explain the dynamically induced emf. (CO1)
- Q.33 Write a short note on parallel operation of three phase transformer. (CO8)
- Q.34 Differentiate step-up and step-down transformer. (CO5)
- Q.35 Drive the equation of induced emf of a transformer. (CO2)

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x10=20)

- Q.36 Explain construction and working of single phase transformer in detail? (CO5)
- Q.37 Give the construction of a 3 phase transformer. Explain it. (CO8)
- Q.38 Write down construction detail of various parts of DC machine with neat sketch. (CO2)