

Q.1 Fill in the blanks. (any four)**4**

- a) The D.O.R. of a DC Motor can be changed by changing the _____.
 - i. field current
 - ii. armature current
 - iii. either field or armature current
- b) If $N_2 > N_1$, the transformer is a ____ transformer.
 - i. Step up transformer
 - ii. Step down transformer
 - iii. Isolation transformer
- c) Fleming's right hand Rule is used to determine the direction of _____.
 - i. Motion of conductor.
 - ii. Induced emf
 - iii. Magnetic field
- d) _____ converts ac to dc.
 - i. Yoke
 - ii. Armature
 - iii. Commutator
- e) _____ is a machine which converts electrical energy into mechanical energy.
 - i. DC Generator
 - ii. Transformer
 - iii. DC Motor
- f) The core type transformer has _____ magnetic paths.
 - i. One
 - ii. Two
 - iii. Three

Q.2 Attempt any three**6**

- a) Draw a neat and labelled diagram of DC Generator.
- b) What are the different types of armature winding.
- c) Explain the function of NVC and OLC.
- d) A transformer has primary voltage of 8600V and a secondary voltage of 250V. It has 50 secondary turns. Find the number of turns in primary and transformation ratio.

Q.3 Attempt any three**6**

- a) Draw a neat and labelled diagram of a Four point starter with DC shunt motor,
- b) A transformer 500/250V, 1 KVA, 50Hz is connected to 500V supply. Calculate the Full load primary and secondary currents.
- c) What are the methods of speed control in a DC Motor.
- d) What is a transformer? On what principle does it work?

Q.4 Attempt any four**12**

- a) Classify the transformers according to:
 - i. Voltage
 - ii. Cooling
 - iii. Core
- b) State Fleming's Right hand rule with diagram.
- c) Explain DC Shunt Generator with Diagram.
- d) An 8 pole lap wound armature has 800 conductors and a flux of 15 mWb per pole. Find the emf induced in an armature when running at a speed of 500 rpm. Also, calculate the emf generated if the conductor is wave wound.
- e) State and explain Lenz's law with diagrams.

Q.5 Attempt any four**12**

- a) State the advantages of electromagnetism.
 - b) Define:
 - i. Magnetic flux
 - ii. DC generator
 - iii. Magnetic circuit
 - c) Give the classification of DC Generators,
 - d) A transformer has 400 turns on the primary and 100 turns on the secondary, the load draws a current of 40A from the secondary. If primary winding is connected to a 400V, 50 c/s supply, calculate the primary current, secondary voltage and transformation ratio.
 - e) Write a short note on core type transformer.
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