A

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The unit of reluctance is   CO1-U

   (a) metre/henry   (b) henry/metre   (c) henry   (d) 1/henry

2. The unit of magnetic flux is   CO1 -U

   (a) Henry   (b) Weber   (c) Ampere-turn/Weber   (d) Ampere/metre

3. Which of the following application requires high starting torque?   CO2 -U

   (a) Air blower   (b) Elevator   (c)tractions   (d) lift

4. Which starter is suitable for controlling the speed of DC motor in field side   CO2- U

   (a) two point   (b) three point   (c) two point   (d) three point

5. Which of the following application requires high starting torque?   CO3 -U

   (a) Air blower   (b) Elevator   (c) Locomotive   (d) Centrifugal Pump

6. Which starter is suitable for controlling the speed of DC motor in field side   CO3 -U

   (a) two point   (b) Three point   (c) four point   (d) any of the above

7. The Transformer ratings are usually expressed in terms of   CO4 -U

   (a) Volts   (b) Amps   (c) KW   (d) KVA

8. Which Winding in a transformer has more number of turns?   CO4 -U

   (a) Low voltage Winding   (b) HIGH voltage Winding

   (c) Primary Winding   (d) Secondary Winding

9. In an Auto Transformer, The Primary and Secondary are_____Coupled   CO5- U

    (a) Only Electrically   (b) Only Magnetically

    (c) Magnetically as well as Electrically   (d) None of the above

10. The efficiency of two identical transformers under load conditions can be   CO5- U
determined by

    (a) SC Test   (b) Back to Back Test   (c) OC Test   (d) BDV Test

<div align="center">PART – B (5 x 2= 10Marks)</div>

11. State Faraday's law of electromagnetic induction   CO1 –U

12. What is the significance of back EMF in a DC motor?   CO2-U

13. What are the losses occurred in DC motor?   CO3-U

14. What is an ideal transformer?   CO4-U

15. Show the condition for parallel operation of a transformer?   CO5 –U

<div align="center">PART – C (5 x 16= 80Marks)</div>

16. (a) Explain the concept of singly –excited machines and drive the   CO1-App   (16)
expression for the electromagnetic torque.

<div align="center">Or</div>

    (b) Illustrate the working principle of dc generators and list out   CO1-App   (16)
different types of generator, explain any one of dc generator.

17. (a) A 6 pole DC series motor has 936 wave connected armature   CO2-App   (16)
conductors. The useful flux per pole is 0.02wb. and the armature
circuit resistance is 0.5 Ω. Calculate (i) the speed and (ii) the
torque developed when its armature takes 35A at 400V.

<div align="center">Or</div>

    (b) Interpret electrical and mechanical characteristics of DC Motor.   CO2-Ana   (16)

18. (a) With help of neat diagram, explain Swinburne's test and derive the   CO3-Ana   (16)
efficiency (Both motor and Generator).

<div align="center">Or</div>

    (b) Explain the Conduction of retardation test on DC motor.   CO3-Ana   (16)

19. (a) Explain the constructional details and working of core type and   CO4-U   (16)
shell type transformers with neat sketches.

<div align="center">Or</div>

    (b) Derive the EMF equation of transformer and write formula of   CO4-Ana   (16)
efficiency and voltage regulation of transformer.

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20. (a) Give short notes on different types of transformer testing. CO5-U (16)

Or

(b) With a circuit explain how to obtain equivalent circuit by CO5-U (16)
conducting OC and SC test in single phase transformer.

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