Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Electrical & Electronics Engg. / Electronics & Electrical Engg.)
(2018 Batch) (Sem.–3)

ELECTRICAL MACHINES-I

Subject Code : BTEEE-303-18
M.Code : 76465

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

1. What is the importance of Magnetic Circuits? Explain.
2. Explain briefly the effect of permeability of materials on the magnetic flux density.
3. What is the significance of flux per pole? Explain.
4. Discuss the significance of torque in electrical machines.
5. What do you mean by back emf? Explain.
6. Explain the need of three winding transformers.
7. What do you mean by Bar Magnet? Discuss.
8. Explain the term Critical Field Resistance.
9. What do you mean by Tap Changing Transformers? Explain.
10. Explain the term efficiency *w.r.t.* transformers.

SECTION-B

11. Explain the following terms in detail :

    a) MMF

    b) Flux

    c) Reluctance

    d) Inductance

12. Discuss (in detail) the working principle and construction of a single-phase transformer. Also discuss its equivalent circuit and phasor diagram.

13. Explain :

    a) Difference between Lap and Wave winding.

    b) Induced EMF in an armature coil.

14. Discuss the parallel operation of three phase transformers.

15. Discuss the open circuit characteristics of separately excited DC generator.

SECTION-C

16. Explain :

    a) Auto-transformers

    b) Scott connection of transformers

17. Explain the VI characteristics and torque speed characteristics of separately excited, shunt and series motors.

18. Explain the following :

    a) Construction of DC machines

    b) Magnetic flux lines and influence of highly permeable materials on the magnetic flux lines.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.