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

Total No. of Questions : 09

B.Tech. (Sem.–3)

MAGNETIC CIRCUITS & TRANSFORMERS

Subject Code : EE-203

M.Code : 90010

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

1. Write briefly :

a) What do you mean by magnetic field strength? Explain.

b) Differentiate between self and mutual inductances.

c) What do you mean by magnetic fringing? Discuss.

d) What do you mean by magnetic pull? Explain.

e) List the various advantages of three phase transformers.

f) Discuss the importance of magnetic circuits in engineering.

g) What do you mean by phase shifting? Discuss.

h) Explain the term regulation w.r.t. transformers.

i) Why rating of a transformer is in kVA? Explain.

j) How the losses in a transformer can be reduced?

SECTION-B

2. Discuss the principle of working of a single phase transformer. Also drive its emf equation.

3. Discuss the principle of operation of an auto transformer. Also compare it with two winding transformer.

4. Define a parallel magnetic circuits. Take a parallel magnetic circuit with an exciting coil. How can coil mmf be calculated for the circuit?

5. Explain (in detail) :

   a) Lenz's Law

   b) Faraday's Law

6. Explain Off load and On load tap. changing transformers in detail.

SECTION-C

7. Explain :

   a) 3-phase transformer

   b) Statically induced & dynamically induced emfs and energy stored in magnetic circuits.

8. A 3-phase transformer is used to step down the voltage of a 3-phase, 11 kV feeder line. Per phase turns ratio is 12. For a primary line current of 20 A calculate the secondary line voltage, line current and output kVA for the star-delta and delta star connections.

9. Discuss :

   a) BH curve and characteristics of magnetic materials.

   b) Parallel operation of single phase transformers.

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.