

Enrollment No: \_\_\_\_\_

Exam Seat No: \_\_\_\_\_

# C. U. SHAH UNIVERSITY

## Winter Examination-2019

Subject Name : Electrical Machine Design-I

Subject Code : 4TE07EMD1

Branch: B.Tech (Electrical)

Semester: 7

Date : 15/11/2019

Time : 10:30 To 01:30

Marks : 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

**Q-1 Attempt the following questions: (14)**

- a) Energy Density in the Electromagnetic machine design is of the order of \_\_\_\_\_. ( $40 \text{ J/m}^3$ ,  $1 \text{ MJ/m}^3$ )
- b) The \_\_\_\_\_ material is a better conductor. (Copper/Iron/ Plastic)
- c) The \_\_\_\_\_ material is used for insulator of transmission line. ( Porcelain/Plastic/Wood)
- d) For the design of electrical machines \_\_\_\_\_ design is preferred. (Electrostatic/Electromagnetic)
- e) Low speed machines are characterized by larger diameter and small axial length. The above statement is (True/False)
- f) The heat conducted by ordinary lamp is by the principal of \_\_\_\_\_. (Radiation/Conduction)
- g) Soldering of aluminum wire is difficult and it reaches the temperature up to  $2000^\circ\text{C}$ . The above statement is (True/False)
- h) Define specific electric loading.
- i) The insulating material used for cooling of power transformer is \_\_\_\_\_. (Oil/ DM Water/Hydrogen) Select the best option.
- j) Mumetal and Perm alloy finds its application in \_\_\_\_\_.(DC machines/ Power Transformer/Instrument Transformer)
- k) The 'at' for magnetic materials means \_\_\_\_\_. (ampere turn, mmf per unit length)
- l) State the name of various parts of d.c. machines.
- m) State the name of various parts of transformers.
- n) Define the term front pitch and back pitch for D.C. armature winding.

**Attempt any four questions from Q-2 to Q-8**

**Q-2 Attempt all questions (14)**

- (a) Write short note on insulating materials used for electrical machines with its temperature range. (7)
- (b) Draw the sketch of leakage flux for various conditions. (7)



