

S.B. Roll No.....

ELECTRICAL MACHINES-I
4th Exam/Elect/EEE/2520/Nov'18

Duration: 3Hrs.

M.Marks:75

SECTION-A

Q1. Fill in the blanks.

15x1=15

- a. In generating action, armature rotates in the same direction as that of _____ torque.
- b. Inward flow of current is represented by the symbol _____
- c. The direction of induced e.m.f can be determined by applying _____
- d. Direction of torque depends upon the _____ of the torque angle.
- e. _____ Motor has high starting torque.
- f. The number of parallel paths in lap wound armature are _____
- g. The segments of commutator of a DC machine are made of _____
- h. As the load on DC shunt motor is increased, its speed will _____
- i. Power transformers are designed for low _____ Losses.
- j. To determine the iron or core losses in the transformer _____ Test is performed.
- k. For step up transformer, the transformation ratio is _____ than unity.
- l. Transformer core is made of silicon steel to reduce _____
- m. The connection of transformer used at distribution substation is _____
- n. The starting torque of DC series motor is very _____
- o. Faraday's second law of electromagnetic induction states that _____

SECTION-B

Q2. Attempt any five questions.

5x6=30

- i. Explain the operation of electrical machine as a generator.
- ii. How the torque is developed due to alignment of two fields?
- iii. What is the function of commutator in DC machines?
- iv. Draw and explain the Speed-Armature current characteristics of DC shunt motor.
- v. Explain the working of Auto transformer.
- vi. Explain the working of a single phase transformer on NO load along with phasor diagram.
- vii. What are the necessary conditions for the parallel operation of transformers?

SECTION-C

Q3. Attempt any three questions.

3x10=30

- a. Explain the working of 3 point DC shunt motor starter with neat diagram
- b. Explain the methods of speed control of DC shunt motor.
- c. Explain in detail the construction and working of Instrument Transformers.
- d. Enumerate the differences between motor and generator actions.
- e. i) Explain the various losses in transformer.
ii) Describe how Open Circuit test is carried out on transformers?