

Code: A-E616123-M

I SEMESTER EXAM – 2025-26

2 x 45

Std.: XII

Sub: ELECTRICAL MAINTENANCE - II

Marks: 40

Date:

Roll No.: _____

Time: 2½ Hrs.

Q.1 Attempt any Four (4)

- (a) The Universal Motor can be run either on A.C. or DC Say True or False
- (b) The transformer is connected to _____
 - (i) A.C. (ii) D.C. (iii) A.C. or D.C.
- (c) _____ transformer's used in receiving station, to step down the voltage
 - (i) Power (ii) Current (iii) Distribution
- (d) Centrifugal switch is connected in _____
 - (i) parallel with running winding. (ii) series with starting winding
 - (iii) parallel with starting winding.
- (e) Parallel operation of two alternators is called _____.
 - (i) alternating (ii) synchronizing (iii) Direct loading
- (f) The Auto-transformer works on the principle of _____.
 - (i) Self Induction (ii) Mutual Induction (iii) Self and Mutual Induction

Q.2 Attempt any three (6)

- (a) Why transformers are rated in KVA instead of KW?.
- (b) Define Transformer. On which principle does it work?
- (c) Why single phase motors are not self starting.
- (d) What are the conditions to be satisfied before synchronizing two alternators?
- (e) Define Slip, Find out the speed of induction motor if it has 8 poles and 2% slip, ($f = 50$ Hz)

Q.3 Attempt any three (6)

- (a) What are the advantages of rotating field type of alternator over rotating armature type of alternator.
- (b) A transformer has a voltage ratio of 6600/500V. If the windings having 50 turns is connected to a 500 V supply and takes 10A current, find the turns and current of primary?
- (c) What are the different types of starters of 3-phase induction motor?
- (d) Why a centrifugal switch is necessary in single Split Phase induction motor?
- (e) What type of motor will you select for following devices:
 - i) floor polishing ii) Tape Recorder iii) Food Mixer iv) printing press

Q.4 Attempt any two (6)

- (a) Explain open circuit test of single phase transformer with neat circuit diagram.
- (b) A 3 phase induction motor is wound for 4 poles and supplied from a 50 c/s system. Calculate
 - i) Synchronous speed ii) speed of the rotor when slip is 4% iii) rotor frequency
- (c) What are the different methods of speed control of 3 phase induction motor?.

Q.5 Attempt any two (6)

- (a) Explain the construction and working of Single Phase Capacitor Start Motor.
- (b) A 30KVA transformer has 500 turns on the primary and 50 turns on the secondary winding. The primary is connected to 3000V 50 Hz ac supply. Calculate (i) Primary and secondary currents at Full load and half load.
 - (ii) Secondary emf (iii) Maximum flux in the core
- (c) Compare core type transformer and shell type transformer.

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Q. 6 Attempt any two**(6)**

- (a) Write down the maintenance schedule of 3-phase power transformer.
 - (b) State the advantages of parallel operation of alternators. Name the methods of connecting alternators in parallel. Explain any one method.
 - (c) State the necessity of the starter for induction motor. Explain the construction and working of Autotransformer starter with neat circuit diagram.
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