FINAL EXAM – 2023

QUESTION BANK

Polyphase System

1. Define; i) Phase voltage ii) Phase current iii) Line voltage iv) Line current v) Balanced load vi) unbalanced load
2. Compare star connection with delta connection.

Transformer

1. What is a transformer? On which principle does it work? Explain.
2. Describe the construction of a transformer with a neat diagram.
3. State the E.M.F equation of the transformer.
4. Define transformation ratio. A transformer has primary voltage of 6,600V and secondary voltage of 250V. It has 52 secondary turns. Find the number of primary turns.
5. A 30 KVA transformer has 500 turns on the primary and 50 turns on the secondary winding. The primary is connected to 3000V, 50Hz A.C.supply. Calculate; i) Secondary E.M.F, ii) Maximum flux in the core.
6. Classify the types of transformers.
7. Compare core type transformer with shell type transformer.

Single Phase Motors

1. Why single phase motors are not self-starting? How it is made to start?
2. What are the types of single phase motors?
3. Explain the construction and working of a single phase split- phase motor with a neat diagram.
4. Why centrifugal switch is necessary in split- phase induction motor?
5. Explain the construction, working and applications of i) capacitor run motor ii) capacitor start motor iii) capacitor start capacitor run motor with neat circuit diagrams.

Three Phase Motors

1. Define; 1) synchronous speed, 2) rotor speed, 3) slip
2. A 12 pole, 3-phase, 50Hz induction motor runs at the speed of 475 r.p.m. Find 1) synchronous peed, 2) slip speed, 3) % slip 4) rotor frequency.
3. A 3-phase induction motor is wound for 4 poles and is supplied from a 50Hz A.C.system. Calculate 1) synchronous speed 2) speed of the rotor when slip is 4% 3) frequency of rotor current.
4. Find the rotor speed of a 4 pole, 50Hz, 3Φ, 400V, squirrel cage induction motor if the slip is 5%
5. What are the different types of a.c. induction motors?
6. Describe the construction, working and applications of squirrel cage induction motor.
7. Compare squirrel cage motor with slip-ring induction motor.