Question Bank (K-Scheme)

Name of course: A.C. MACHINES PERFORMANCE **Program: EE**

Unit Test: I **Subject code: 315333 (ACM)** **Semester: V**

Chapter 1: Three Phase Induction Motors-(20 M)

2 Marks

1. Define Slip and Synchronous speed of 3 phase induction motor.
2. State working principle of three phase induction motor.
3. State the reason of Skewed rotor bars in 3phase squirrel cage Induction Motor.
4. Draw the torque slip characteristics of three phase induction motor.
5. State the Losses in Three Phase Induction Motor.

4 Marks

6. Draw the Power Flow diagram of three phase induction motor.
7. A 3 phase, 50 Hz 8 pole induction motor has full load slip of 2%. The rotor resistance and standstill rotor reactance per phase are 0.001 ohm and 0.005 ohm respectively. Find the ratio of maximum to full load torque and the speed at which the maximum torque occurs.
8. The power input to a six pole,3 phase,50 Hz induction motor is 42 kW, the speed being 970 rpm . The stator losses are 1.2 kW and friction and windage losses are 1.8 kW. Find i) slip, ii) Rotor Output iii) Rotor copper loss and iv) Efficiency.
9. Compare Slip ring induction motor with Squirrel cage induction motor on any six parameters.
10. Derive the condition for maximum torque under running conditions for a three phase induction motor.
11. A 12 pole, 50Hz, 3 phase induction motor has rotor resistance of 0.15 Ω and stand still reactance of 0.25 Ω per phase. On full load, it is running at a speed of 480 rpm. The rotor induced emf per phase at standstill is observed to be 32 V. Calculate: (1) Starting torque(2) Full load torque(3) Maximum torque(4) Speed at maximum torque

12. Explain production of R.M.F. in 3-phase Induction Motor. when 3phase supply is fed to it. Draw its phasor diagram.

Chapter 2: Starting and Speed control of three phase induction motors-(10M)

2 Marks

13. State the Necessity of Starter.
14. List the types of Starters.
15. State applications of Three phase induction motor.

4 Marks

16. Draw neat diagram of star-delta starter for three phase induction motor.
17. List the different method of speed control of 3 phase induction motor and explain any one method in detail.
18. Explain working of the auto transformer starter for a 3 phase induction motor with neat diagram.
19. Explain working of the Soft Starter with neat diagram.

Chapter 3: Single Phase Induction Motors-(14 M)

2 Marks

20. State the function of centrifugal switch in single phase induction motor.
21. List the types of Single Phase Induction Motor.
22. Draw diagram of Resistance Split Phase Induction motor.
23. Write the applications of Single Phase Induction Motor.

4 Marks

24. Why single phase induction motor is not self-starting? Justify with the help of double field revolving theory.
25. Draw and Explain working of resistance split phase single phase induction motor. Also draw its Torque-Speed characteristics.