

Duration: 3 Hours

Total Marks: 80

Note: 1) Question no **1** is compulsory2) Solve any **three** questions from remaining questions

3) Assume suitable data if required and mentioned it

Q.1 Solve **any four**

20

- What is the difference between a generator and a motor?
- Explain power flow diagram for an Induction Motor
- State the advantages and disadvantages of moving iron instrument.
- Explain the applications of CRO
- Derive e.m.f equation of DC generator

Q.2 a) Two series motors run at a speed of 700 r.p.m. and 750 r.p.m respectively, 10  
when taking 70A at 500 V. The terminal resistance of each motor is  $0.5\Omega$ .

Calculate the speed of the combination when connected in series and coupled mechanically. The combination is taking 70A at 500V supply.

b) Explain speed control methods of DC motor 10

Q.3 a) Explain how rotating magnetic field is produced in 3 phase induction motor. 10

b) Explain the Speed control methods for DC Shunt Motor 10

Q. 4) a) Derive the bridge balance equation for the basic a.c. bridge 10

b) Explain series and shunt type ohm meter 10

Q. 5) a) A 3phase, 12 pole, induction motor has rotor resistance of  $0.15\Omega$  and standstill 10  
reactance of  $0.25\Omega$  per phase . On full Load it is running at a speed of 480 r.p.m.

The rotor induced e.m.f. per phase at standstill is observed to be 32V. Calculate

- Starting Torque
- Full load torque
- Maximum Torque
- Speed at maximum torque.

b) Explain variable frequency drive. List its applications 10

Q.6) Write short notes on (**any two**) 20

- DMM
- Shaded pole induction motor
- Applications of CRO.