Q.P. Code: 25397

**Duration: 3 Hours**   **Total Marks: 80**

Note: 1) Question no **1** is compulsory

2) Solve any **three** questions from remaining questions

3) Assume suitable data if required and mentioned it

Q.1   Solve   20

a) Explain the types of DC motor

b) Explain the use of slip rings and brush assembly.

c) State the advantages of using the bridge circuits for the measurement.

d) What is sensitivity of voltmeters? Explain.

Q.2   a) A 230V, d.c. Shunt motor takes a no load current of 3A and runs at 1100 r.p.m.   10
If the full load current is 41A, find the speed on Full load. Assume armature
resistance as 0.25Ω and that of shunt field winding as $230\,\Omega$.

b) Explain the Torque slip characteristics of 3 phase induction motor.   10

Q.3   a) Explain constructional details of PMMC instruments   10

b) A bridge is shown in the figure. Calculate the current through Galvanometer.   10
where Rg = 300 Ω

8V
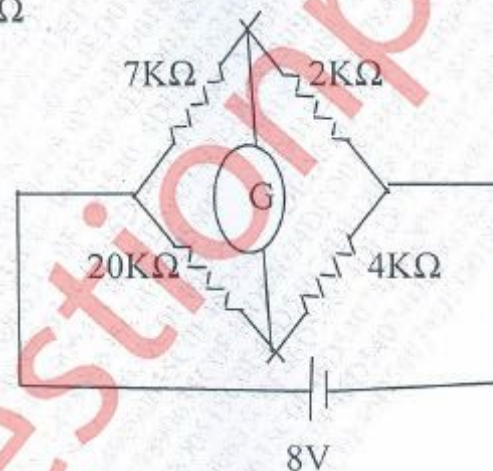
Q. 4)   a) Explain how rotating magnetic field is produced in 3 phase induction motor   10

b) Explain Kelvin's double bridge for low value resistance measurement? Derive the
expression   10

Q. 5)   a) A 3phase, 4 pole, 50Hz induction motor has a star connected rotor. The voltage   10
across each phase of the rotor at standstill is 121 V. The rotor resistance is 0.3Ω
and standstill reactance is $0.8\,\Omega$ per phase. If in the running condition rotor current
per phase is 15A, calculate the speed at which it is running.

b) Explain losses in three phase induction motor   10

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

1) Star Delta Starter

2) Megger

3) Analog to Digital Converters