

B.E. Third Semester (Electronics & Telecommunication) (CGS)
10594 : Electric Drives & Measurement : 3 XT 04 / 3 XN 04

P. Pages : 2

Time : Three Hours



AU - 2510Add

Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answer necessary with the help of neat sketches.
 5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) Explain Kelvin Double Bridge method of measurement of Low Resistance with suitable diagram and derivation. 7
- b) Draw the connection diagram and phasor diagram for carey foster bridge under balance condition. State the equation of balance for the measurement of unknown capacitance. 7

OR

2. a) Explain the Schering bridge with phasor diagram. 7
- b) Explain the method used for measurement of insulation resistance. 7
3. a) Explain measurement of power in a 3 phase circuit with two Wattmeters for a balanced star connected load. 6
- b) A Wattmeter has a current coil of 0.1Ω resistance and pressure coil of 6500Ω resistance, calculate the percentage errors due to resistance only with each of the methods of connection, when the input reading to an apparatus which takes.
i) 12 A at 250 V with unity power factor.
ii) 12 A at 250 V with 0.4 power factor. 7

OR

4. a) Explain in detail the single phase electro - dynamometer type power factor meter. 6
- b) Explain the vibrating reed type frequency meter. 7
5. a) Draw and explain the electrical characteristic of D.C. shunt and series motor. 6
- b) A 230 V, D.C. shunt motor runs at 800 rpm and takes armature current of 50 Amp. Find the resistance to be added to field circuit to increase speed to 1000 rpm at an armature current of 80 Amp. Assume flux is proportional to field current. Consider armature resistance of 0.1Ω and shunt resistance of 250Ω . 7

OR

6. a) Explain flux control method for speed control of D.C. series motor. 6
- b) Explain plugging method of braking of D.C. motor also explain disadvantages. 7

SECTION - B

7. a) Explain with neat sketch V/f speed control method for 3 - phase induction motor. 6
b) Derive an expression for running torque of 3 - phase induction motor. 7

OR

8. a) With neat sketch, explain plugging method for 3 - phase induction motor. 6
b) Explain slip power recovery scheme for speed control of induction motor. 7
9. a) Explain Pulse transformer with its applications. 6
b) A small industrial plant draws an average load of 122 Amp at 0.7 power factor lagging from the secondaries of its 2300 / 204 V, 60 KVA, Star - Delta transformer bank. Find : 7
i) Power used by the plant in kw.
ii) Total KVA used.

OR

10. a) Describe the Scott connection of Transformer. 6
b) Explain OPEN - DELTA or VV connection in Transformer. 7
11. a) Explain in brief D. C. Tachometer. 7
b) Explain in detail, the permanent magnet stepper motor. 7

OR

12. a) Explain the construction, characteristic and principle of operation of universal motor. 7
b) Explain in brief A. C. Tachometer with relevant diagrams. 7

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