

Reg. No.

Question Paper Code

11736

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022
Second Semester
Mechanical Engineering
 (Common to Mechanical and Automation Engineering)
20ESEE201 - ELECTRICAL TECHNOLOGY WITH LABORATORY
 (Regulations 2020)

Duration: 3 Hours

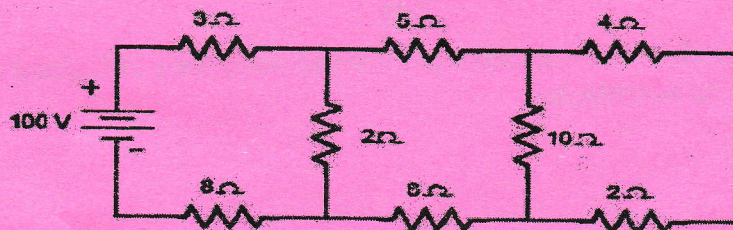
Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
 Answer ALL Questions

- | | <i>Marks,</i>
<i>K-Level, CO</i> |
|--|-------------------------------------|
| 1. Compare series and parallel circuit. | 2,K2,CO1 |
| 2. Define superposition theorem. | 2,K1,CO1 |
| 3. Why transformer is rated in KVA? | 2,K1,CO2 |
| 4. What are the various losses in DC Machines? | 2,K1,CO2 |
| 5. Classify the two types of three phase induction motor. | 2,K2,CO3 |
| 6. List the applications of single phase induction motor. | 2,K1,CO3 |
| 7. Classify the two types of rotor of three phase induction. | 2,K2,CO4 |
| 8. Label the block diagram of an Electrical drive system. | 2,K1,CO5 |
| 9. Summarize short time rating. | 2,K2,CO5 |
| 10. Compare Mechanical and Electrical Braking. | 2,K2,CO6 |

PART - B (5 × 13 = 65 Marks)
 Answer ALL Questions

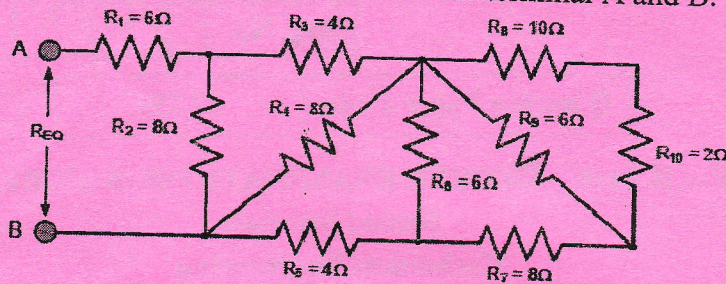
11. a) Find the current through each branch by network reduction technique. 13,K3,CO1



OR

- b) Find the equivalent resistance across the terminal A and B.

13,K3,CO1



12. a) Explain with neat sketches the principle of operation of DC motor. 13,K2,CO3

OR

- b) Explain the construction and working principle of three phase induction motor. 13,K2,CO3

13. a) A 3300/440 V, single phase 400 kVA transformer has 800 primary turns. Find: a). Transformation ratio, b). Secondary turns, c). Voltage/turn, d). Secondary current when it supplies a load of 200 kW at 0.8 power factor lagging. 13,K3,CO4

OR

- b) Explain the various methods of speed control of D.C shunt motor. Discuss the merits and demerits. 13,K2,CO4

14. a) Explain various classes of motor duties. 13,K2,CO5

OR

- b) The temperature rise of a motor when operating for 25min on full load is 25°C and becomes 40°C when the motor operates for another 25 min on the same load. Infer heating time constant and steady state temperature rise. 13,K3,CO5

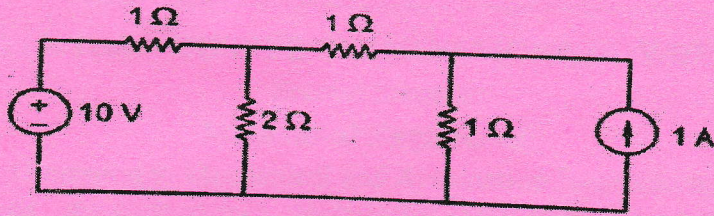
15. a) Explain the dynamic braking of D.C series motor with speed-torque characteristics. 13,K2,CO6

OR

- b) Explain with a neat diagram 4 point starter used for a D.C shunt motor. Mention its advantages. 13,K2,CO6

PART - C ($1 \times 15 = 15$ Marks)

16. a) Find the current by using superposition theorem for the circuit shown. 15,K3,CO2



OR

- b) Find the thevenin's equivalent circuit of the network shown in fig. 15,K3,CO2

