

ANURAG Engineering College

(An Autonomous Institution)

I B.Tech I Semester Supplementary Examinations, Jan/Feb-2024

BASIC ELECTRICAL ENGINEERING

(COMMON TO ECE & CSE)

Time: 3 Hours

Max. Marks: 75

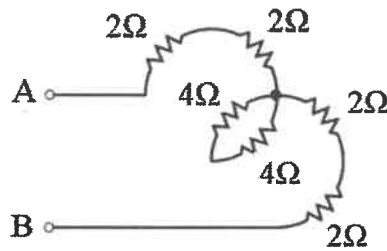
Section – A (Short Answer type questions)

(25 Marks)

Answer All Questions

Course Outcome	B.T Level	Marks
CO1	L1	2M

1. What is the equivalent resistance between the terminals, AB in the following circuit?



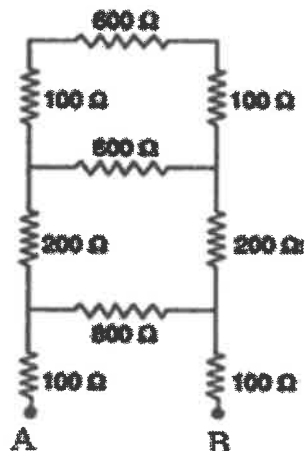
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|---|-----|----|----|
| 2. Write the expression for star to delta transformation. | CO1 | L2 | 3M |
| 3. What do you mean by Form factor and Peak Factor of Sinusoidal wave form? | CO2 | L2 | 2M |
| 4. Write down the Voltage and Current relations for Delta Connection | CO2 | L1 | 3M |
| 5. What is meant by primary and secondary windings of a transformer? | CO3 | L2 | 2M |
| 6. State Fleming's Left Hand Rule. | CO3 | L1 | 3M |
| 7. What is meant by slip in an induction motor? | CO4 | L1 | 2M |
| 8. What is the principle to vary speed below rated speed in a dc motor? | CO4 | L2 | 3M |
| 9. What is a Relay? | CO5 | L2 | 2M |
| 10. Explain Principle of Operation of Synchronous Generator. | CO5 | L1 | 3M |

Section B (Essay Questions)

Answer all questions, each question carries equal marks.

(5 X 10M = 50M)

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|--|-----|----|-----|
| 11. A) Find the equivalent resistance between two points A and B of the figure shown | CO1 | L3 | 10M |
|--|-----|----|-----|



OR

- | | | | |
|--|-----|----|-----|
| B) State and explain Thevenin's theorem. | CO1 | L3 | 10M |
|--|-----|----|-----|

12. A) A coil having a resistance of 10 ohms and an inductance of 0.2H is connected in series with a 100×10^{-6} F capacitor across a 230V, 50Hz, determine
i) The active and reactive components of the current and power.
ii) The voltage across the coil, Draw the phasor diagram.
- OR**
- B) Derive the expression for the average value and form factor of a sinusoidal waveform.
13. A) Derive an expression for the coefficient of Coupling.
- OR**
- B) Explain the principle of working of transformer. Why the primary of transformer draws current from the mains when the secondary is open circuited?
14. A) Derive the emf and torque equations of a dc motor.
- OR**
- B) Draw and explain torque – slip characteristics of induction motor.
15. A) Explain Working Principle and operation of Synchronous Generator? Draw the O.C and S.C Characteristics?
- OR**
- B) Explain the different types of batteries in detail.
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|--|-----|----|-----|
| | CO2 | L3 | 10M |
| | CO2 | L3 | 10M |
| | CO3 | L3 | 10M |
| | CO3 | L3 | 10M |
| | CO4 | L3 | 10M |
| | CO4 | L3 | 10M |
| | CO5 | L3 | 10M |
| | CO5 | L3 | 10M |