

Roll No. ....

Total Pages : 02

BT-2/M-17

8212

ELECTRICAL TECHNOLOGY

EE-101-E

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt Five questions in all, selecting at least one question from each Unit A, B, C and D.

#### Unit A

1. (a) An ac wave  $v = V_m \sin \theta$ , (where  $\theta = \omega t$ ). Find out their average and r.m.s values for complete and half cycle. 10  
(b) Given (all in volts) :  $V_1 = 20 \cos \omega t$ ,  
 $V_2 = 10 \cos(\omega t - 225^\circ)$ ,  $V_3 = 10 \cos(\omega t + 270^\circ)$ ,  
Find  $V = V_1 + V_2 + V_3$ . 10
2. Explain in detail the superposition theorem and write its verification by procedural steps taking a linear resistive DC circuit having one voltage and one current source. 20

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#### Unit B

3. Explain in detail the Thevenin's Theorem and write its verification by procedural steps taking a linear resistive DC circuit having one voltage and one current source. 20
4. Explain in detail the theory of sinusoidal frequency response RLC circuit including resonance, with neat diagrams. Also write at least two points of comparison of parallel resonance with series resonance. 20

#### Unit C

5. Explain in detail the two wattmeter method of power measurement for delta connected purely resistive load with suitable steps containing equations, circuit and phasor diagram. 20
6. Explain in detail open circuit test and short circuit test on a single phase transformer with suitable diagrams. 20

#### Unit D

7. Explain in detail the construction and working of a DC Motor with suitable sketches. 20
8. Explain principle, general construction and working of 3-phase induction motor with suitable sketches. 20

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