1 8 4 5

Elements of Electrical & Electronics Engg.
(102114)

P. Pages : 3

Time : Three Hours   **Max. Marks : 80**

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** sub-question from each unit.
5. Assume suitable data wherever necessary and state the assumptions made.
6. Diagrams / sketches should be given whenever necessary.
7. Use of logarithmic table, drawing instruments and non-programmable calculators is permitted.
8. Figure to the right indicate full marks.

UNIT - I

1. a) What do you mean by voltage division and current division rule ? Explain with suitable example.   **8**

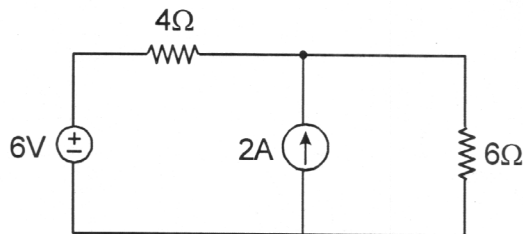   b) Find current through R=$6\,\Omega$ resistor in the circuit shown in fig.(1) by using Thevenin's theorem.   **8**

Fig. 1

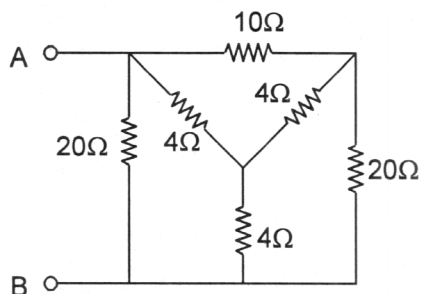c) Find the equivalent resistance between A-B terminals in the resistive network of Fig.(2).   **8**

Fig. 2

UNIT - II

2. a) With help of construction explain generation of single phase alternating voltage.   **8**

b) Derive the expression for current and power for purely capacitive curcuit with corresponding waveform.   **8**

c) Define :   **8**
   i) Reactance   ii) Admittance
   iii) conductance   iii) Susceptance

UNIT - III

3. a) Explain operation of forward and reverse biased diode. Also draw V-I characteristics.   **8**

b) Draw and explain common emitter circuit configuration for nph transistor. Also derive the relationship between α_{dc} and β_{dc} .   **8**

c) Draw and explain the voltage divider bios circuit.   **8**

UNIT - IV

4. a) Draw the circuit diagram of transistor series regulator and explain it.   **8**

b) Explain principle of operation and construction of LVDT.   **8**

c) Draw non-Inverting amplifier using OP-Amp and derive expression for it's output voltage.   **8**

UNIT - V

5. a) Draw the logic symbol. Write the expression and truth table for following logic gates.

   i) OR　　　　　　　　ii) AND

   iii) Ex-NOR　　　　　iv) NOT

   b) Draw the block diagram of 8085 micro-processor.
      Explain Register and ALU.　　　　　　　　　　　　　　8

   c) i) Explain with neat diagram the operation of mercury vapour lamp.　　4

      ii) Write note on plate earthing.　　　　　　　　　　　4

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