

Seat No.

**Elements of Electrical and Electronics Engineering (New)**

**Total Time : Three Hours**

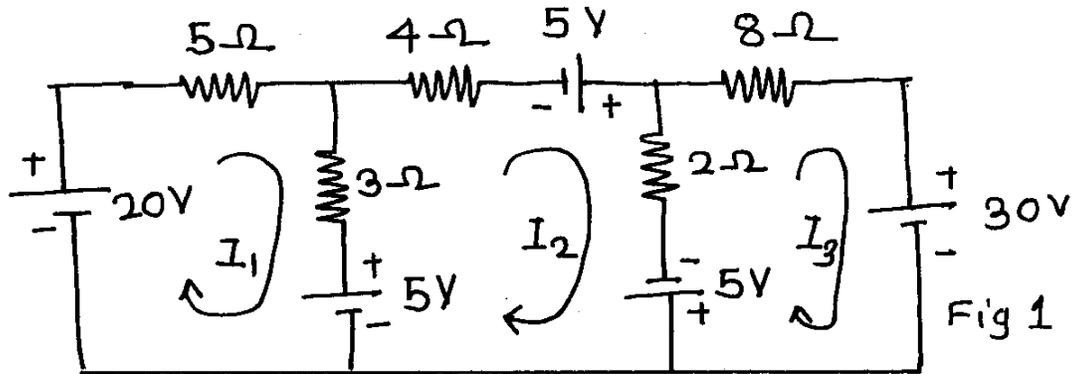
**Total Marks:80**

- 01) Do not write anything on question paper except Seat No.
- 02) Assume suitable data if necessary
- 03) Figures to right indicate full marks
- 04) All questions carry equal marks

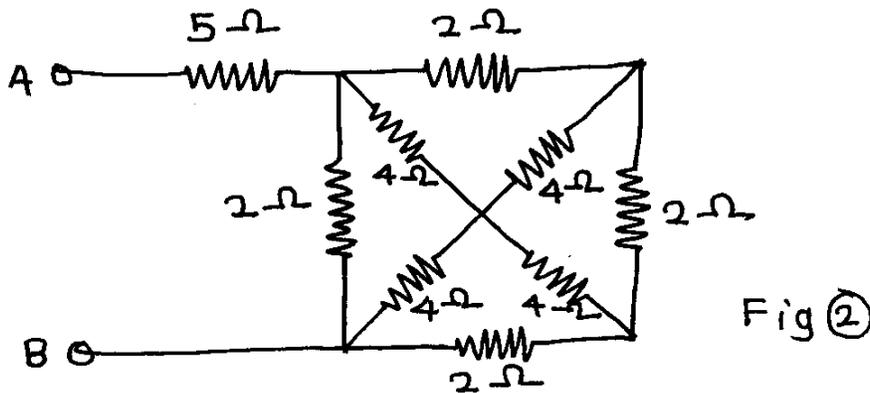
**UNIT-I**

1) Solve any two questions 16

a) Determine the current supplied by each battery in the circuit shown in fig:1 using loop analysis.



- b) Write short note on maximum power transfer theorem
- c) Use delta-star conversion to find resistance between terminals 'AB' of the circuit shown in fig2.



P.T.O.

**UNIT-II**

02) Solve any two questions

16

- a) Write short on '3 $\phi$ ' EMF generation.
- b) A circuit connected to 115v,50 Hz supply takes 0.8 A at a power factor of 0.3 lagging. Calculate the resistance and inductance of circuit assuming (i) circuit consist of resistance and inductance in series (ii) circuit consist of resistance and inductance in parallel.
- c) Define the terms
- |                    |                   |
|--------------------|-------------------|
| i) Impedance       | ii) Admittance    |
| iii) conductance   | iv) susceptance   |
| v) Reactance.      | vi) RMS Value     |
| vii) Average value | viii) Form factor |

**UNIT-III**

03) Solve any two questions

16

- a) Draw circuit diagram of full wave rectifier and explain its operations with the help of wave forms.
- b) Explain input and output characteristics of common Base Configuration in detail.
- c) Define  $\alpha$ ,  $\beta$ ,  $\nu$  of a transistor. Show how are they related to each other.

**UNIT-IV**

04) Solve any two questions

16

- a) For op-Amp explain virtual ground concept in detail.
- b) Explain transistor series regulator in detail.
- c) Write short on strain gauge transducer.

(P.T.O.)

UNIT-V

05) Solve any two questions

16

- a) Design Half Adder and Half subtractor using logic gates.
- b) Draw block diagram of 8085 microprocessor.
- c) Realise following logic expression using basic gates.

$$i) Y = \overline{B}C + \overline{A}C + \overline{A}B$$

$$ii) Y = (A+B)(\overline{A}+C)(B+D)$$
$$= X =$$

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