Total Pages—4

I—Sem/COMMON/2018(S)
(New)(80)

BASIC ELECTRICAL ENGG.

(Code : BET-101)

Full Marks : 80

Time : 3 hours

Answer any **five** questions including **Q. Nos. 1 & 2**

Figures in the right-hand margin indicate marks

1. Answer *all* questions :　　　　　　　　2 × 10

    (*a*) Define amplitude and frequency.

    (*b*) Write the Fleming Left hand rule.

    (*c*) Name types of wiring.

    (*d*) Write main parts of DC machine.

    (*e*) What is reluctance ?

    (*f*) What is phase difference ?

    (*g*) What is back emf ?

    (*h*) What are the electrical parameters of a circuit ?

(*Turn Over*)

(2)

(i) What is fuse ?

(j) What are the no of parallel path in lap winding and wave winding of a D.C. generator ?

2. Describe any *six* of the following :   5 × 6

(a) Explain principle of operation of 3-ϕ induction motor.

(b) Explain difference types of torque applied to measuring instrument.

(c) A pure resistance of 50 Ω is an series with a pure capacitance of 100 μF. The series combination is connected across 100 V, 50 Hz supply. Find (i) the impedance (ii) current (iii) power factor (iv) phase angle (v) voltage across resistor.

(d) Explain ac through RC series circuit.

(e) Using Thevenin theorem, calculate the current flowing through the 4 Ω resistor. All resistance in the circuit are in ohm.
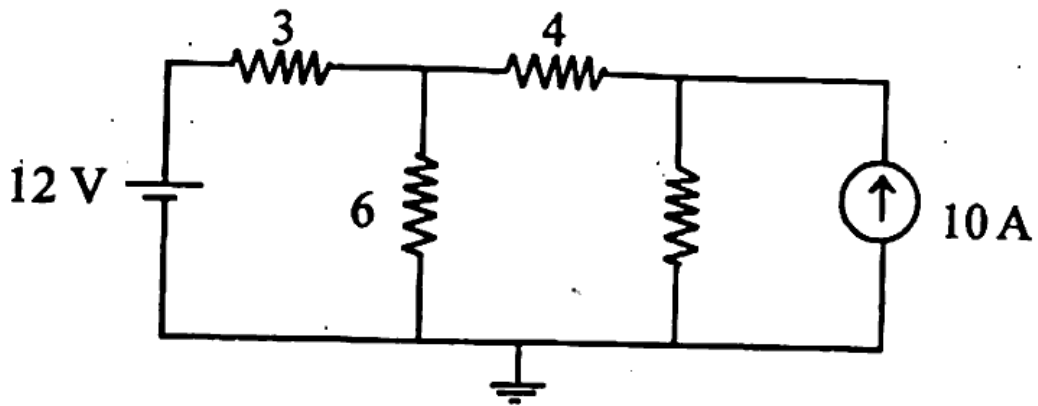
(*f*) State and explain maximum power transfer theorem.

(*g*) Explain impedance triangle and power triangle.

(*h*) State different uses of PMMC type of instrument.

3. Following are the details of load on a domestic house connected through a supply meter.

8 lamps 60 W each working 6 hours per day
8 tubes 40 W each working 8 hours per day
8 refrigerator 80 watt working 24 hours per day
1 motor 0.5 H.P. working 2 hours per day. If the cost of each unit of energy is Rs.2.40 for first 50 units and rest of the amount is Rs.4.00, what will be the electricity bill for the month of January ? 10

4. Discuss about B-H curve for magnetic material. 10

5. State and explain thermal power plant with block diagram. 10

6. Find the resistance between A and B for the given circuit below. All resistance are in ohms. 10
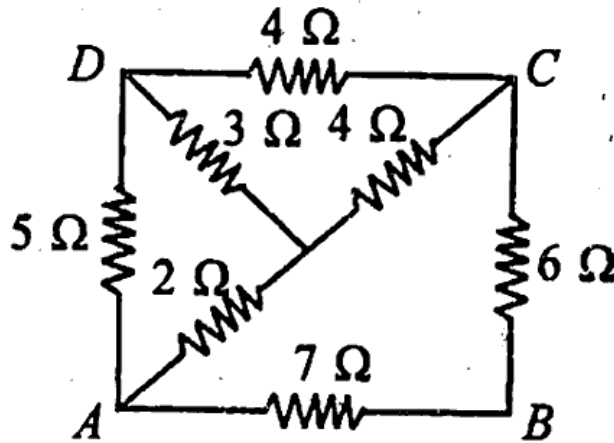
7. Derive delta to star transformation using the following circuit : 10

(a)

(b)