KLR

E-134

Roll No. 1802121054

Basic Electricity

3K4-IA-04

Time : 03 hrs.] [M.M. : 100

Note :—

1. *Part 'A' may be attempted in first 6 pages of Answer Sheet.*
   भाग 'क' के सभी उत्तर, उत्तर-पुस्तिका के प्रथम छः पृष्ठों में ही करने हैं।
2. *Part 'B' in rest of the Sheets of Answer Sheet.*
   भाग 'ख' के उत्तर, उत्तर-पुस्तिका के अगले शेष पृष्ठों में लिखिये।
3. *Answers may be given in English or Hindi.*
   प्रश्नों के उत्तर अंग्रेजी अथवा हिन्दी में दीजिये।

PART – A

1. Attempt any ten questions : **(10x2=20)**

(a) The resistance of 200W, 200V lamp is .....

(b) Specific resistance is measured in .....

(c) State maximum power transfer theorem.

(d) What is principle of self and mutual induction.

(e) Explain Len'z law.

(f) Define Power

(g) Define Energy.

(h) Define Gauss's Theorem.

(i) What is Electrical intencity and Electrical field ?

(j) Differentiate between AC and DC.

(k) State Nortons Theorem

(l) Write formulae for stored in an inductor and in capacitor

(m) Define power factor.

(n) Write methods of producing deflecting torque.

2. Attempt any five questions : **(5x4=20)**

(a) Explain repulsive type moving iron instrument ?
(b) Explain principle and working of dynometer type MI instruments ?
(c) Draw a sinusoidal waveform and write its equation along with meaning of all symbols.
(d) Explain how energy stored in a magnetic field.
(e) Explain the application of Therenin's Theorem and Nortons theorem in DC circuit.
(f) Convert the star circuit in Fig. 1 into its equivalent delta circuit.

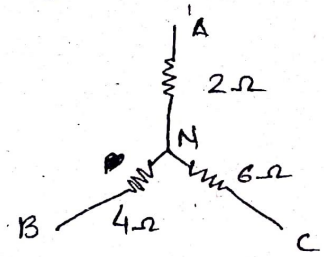

Fig. 1

(g) Define peak value and time period of the alternating quantity.
(h) Derive the condition for resonance is an series a.c. circuit.

PART- B

Attempt any three questions : **(3x20=60)**

3. (a) An alternating voltage is given by V=141.4 sin 314 t. Find
(i) Frequency (ii) R.M.S. value (iii) Average value (iv) Instantaneous value of voltage when t is 3 m sec

(b) Determine the value of Resistance 'R' as shown in Figure 2 using KVL and KCL.

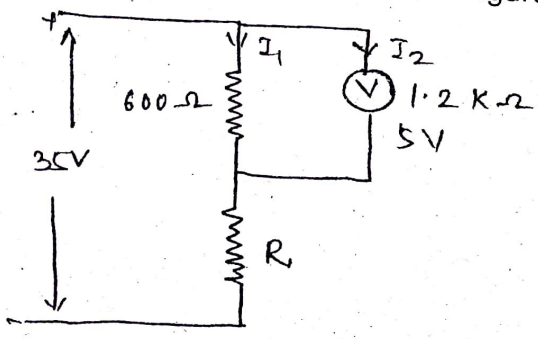

Fig. 2

4. (a) Explain in details PMMC instrument with the help of neat diagram.
(b) Define (i) Faraday's Law (ii) Permeability (iii) Reluctance (iv) Hystersis

5. (a) Explain superposition theorem with an example.
(b) Explain current source and voltage source and give one example of each.

6. (a) Derive the analogy between electric and magnetic circuits.
(b) Explain Hystersis loop and also derive relation between B & H.

7. (a) With the help of neat diagram, explain the construction and operation of an induction type instruments ?
(b) How ammeter and voltmeter can be constructed using PMMC instruments.