2ND SEM . /COMMON/ 2023(S)NEW

TH-4 (A&B)   Basic Electrical and Electronics

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1.   Answer **All** questions   2 x 10

   a.   Define(i)Amplitude factor (ii) Kirchhoff's Current Law

   b.   What are the differences between DC and AC supply?

   c.   Write any two merits of full wave bridge rectifier.

   d.   Why is the average value of sinusoidal signal calculated in half cycle?

   e.   State any two uses of integrated circuits.

   f.   A resistor of 6 ohm and an inductive reactance of 8 ohm are connected in series to a 250V, 50Hz supply. Calculate the current flowing in the circuit network.

   g.   What do you mean by photoconductive transducer?

   h.   Classify different types of Transistor configuration.

   i.   What do you mean by star rating concept of home appliances?

   j.   What do you mean by electron emission? Give an example

2.   Answer **Any Six** Questions   6 x 5

   a.   What are the main parts and principle of operation of DC generator?

   b.   Describe the alternating current (AC) through pure capacitance with phasor diagrams.

   c.   Explain the working of Super heterodyne Radio Receiver briefly.

   d.   A shunt generator delivers 450 A at 230 V and the resistance of the shunt field and armature are 50 Ω and 0.03 Ω respectively. Calculate the generated EMF.

   e.   Describe about the MI type measuring instruments briefly.

   f.   Write a short note on Mercury Vapour Lamp with a neat diagram.

   g   Briefly describe the operating principle of LVDT with a neat diagram

3.   10

Calculate the electricity bill amount for a month of 30 days, if the following devices are used as specified :

1

3.12 KwH/day

T= 93.6 units

(i). 3 Bulbs of 40 W for 6 h/day
(ii). 2 Tube lights of 50 W for 8 h/day
(iii). 2 computers of 40 W for 6 h/day
(iv). 2 fans of 70 W for 8 h/day

Given, the cost of electricity is Rs. 2.5/unit

4   Write a short note on   10
• (i) Basic protective devices used in house hold wiring
(ii) Single phase Transformer

5   Describe about the Radio Transmitter & Receiver along with their block diagrams.   10

• 6   Explain about the nuclear powerplant in details with a neat diagram.   10

7   Write a short note on (i) Zener Diode (ii) Bourden tube diaphragm   10