

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 :

- (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 |