

1ST SEM. / COMMON / 2022(W)

Th-4a&b Basic Electrical and Electronics Engineering

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) Lumen (ii) Kirchhoff's Voltage Law
 - b. What do you mean by electron emission? Give an example.
 - c. What is Ohm's Law? Also write the mathematical expression associated with it
 - d. Classify the types of DC Generator.
 - e. Write any two differences between intrinsic and extrinsic semiconductor.
 - f. Define (i) RMS value (ii) Form factor in AC supply.
 - g. If in a DC circuit network, two resistors of 2 ohm and 4 ohm connected in parallel are supplied with 20V DC supply, what will be the voltage drop in 4 ohm resistor?
 - h. What is passive transducer? Give an example.
 - i. Draw the CE configuration of transistor.
 - j. What do you mean by impedance triangle?
2. Answer Any Six Questions 6 x 5
- a. What are the main parts and principle of operation of DC motor?
 - b. Describe about the PMMC type measuring instruments briefly.
 - c. Explain different types of basic filter circuits with proper circuit diagram.
 - d. An AC series RL circuit is made up of a resistor that has a resistance value of 150Ω and an inductor that has an inductive reactance value of 100Ω . Calculate the impedance and the phase angle θ of the circuit.
 - e. Briefly describe the operating principle of LVDT with a neat diagram
 - f. Write a short note on Sodium Vapour Lamp with a neat diagram.
 - g. What are the differences between vacuum tube & semiconductor?
3. Calculate the electricity bill amount for a month of 30 days, if the following devices are used as specified : 10
- (i). 2 Bulbs of 40 W for 6 h/day
 - (ii). 2 Tube lights of 50 W for 8 h/day
 - (iii). 1 TV of 120 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 short notes on (i) Zener Diode (ii) Transistor oscillator 10
5. Describe about Amplitude Modulation & Frequency Modulation in details. 10
6. Explain about the thermal power station in details with a neat diagram. 10
7. Draw and explain the block diagram of CRO and also state its applications. 10