

22213

12425

03 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Figures to the right indicate full marks.
(3) Use of Non-programmable Electronic Pocket Calculator is permissible.
(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following:** **10**
- a) Draw the symbol of LED and photo Diode.
 - b) List the types of filter's.
 - c) Draw the symbol of NPN and PNP transistor.
 - d) Draw the pin configuration of IC 723.
 - e) List any two application of Zener Diode.
 - f) Define the term load Regulation.
 - g) Write DeMorgan's Theorems.
2. **Attempt any THREE of the following:** **12**
- a) Draw and Explain the V-I characteristics of PN Junction Diode.
 - b) Explain center-tapped Full Wave Rectifier with circuit diagram and Draw input output waveforms.
 - c) Compare CB, CE and CC configuration (Any four points.)
 - d) Draw the Block diagram of regulated power supply and state the function of each blocks.

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- 3. Attempt any THREE of the following:** **12**
- a) Draw and Explain the working of zener diode as a Voltage Regulator.
 - b) List the application of LC and RC ascillator's.
 - c) Describe transistor as a switch with neat sketch.
 - d) Compare Half wave rectifier with Full wave rectifier (Any four points)
- 4. Attempt any THREE of the following:** **12**
- a) List the application of crystal oscillator.
 - b) Draw the circuit diagram of Bridge rectifier with π filter. Draw it's input output waveforms.
 - c) For a transistor $\alpha = 0.98$ and $I_C = 4 \text{ mA}$. Calculate I_B and I_E .
 - d) Describe the working principle of photo diode with proper diagram.
 - e) Define filter and draw the different types of filters.
- 5. Attempt any TWO of the following:** **12**
- a) Define α and β of transistor and derive the relation between them.
 - b) State the need of regulation. Draw circuit diagram of DC regulated Dual power supply for $\pm 12\text{V}$ using IC 78 $\times\times$ and IC 79 $\times\times$.
 - c) Sketch the implementation of OR gate and AND gate using NAND gate.

6. Attempt any TWO of the following:**12**

- a) Compare RC and LC oscillators.
 - b) Draw output characteristics of CE configuration and Explain active, region, safuration region and cut off region.
 - c) Convert the following:
 - i) $(208)_{10} = (\quad)_2$
 - ii) $(AFC)_{16} = (\quad)_8$
 - iii) $(247)_8 = (\quad)_{10}$
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