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23242

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) 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) Identify the name of the diodes of following symbols



- b) Define transistor and its types.
- c) Give the classification of amplifier.
- d) List out any two applications of FET.
- e) Write down the output voltage of IC 7805 and IC 7909.
- f) In multistage amplifier, if the gain of first amplifier is 25, gain of second amplifier is 50. Calculate the total gain of this multistage amplifier.
- g) State the types of BJT amplifier coupling.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) Describe the circuit diagram of Bridge rectifier with its input and output waveform.
 - b) Draw and explain zener diode as a voltage regulator.
 - c) Explain the circuit diagram and waveform of single stage CE amplifier.
 - d) Compare PN junction diode and zener diode.
- 3. Attempt any THREE of the following: 12**
- a) Draw the transformer coupled amplifier and its frequency response.
 - b) Compare BJT and FET.
 - c) Sketch input and output characteristics of CB configuration of a transistor.
 - d) Describe the voltage divider bias with neat circuit diagram and write the equation for operating point.
- 4. Attempt any THREE of the following: 12**
- a) Draw the circuit diagram and input - output waveforms of full wave centre tapped rectifier with π filter.
 - b) Describe the working principle of n- channel JFET.
 - c) Draw and explain the block diagram of DC regulated power supply.
 - d) Compare CB, CE and CC configuration of a transistor.
(Any 4 points)
 - e) Explain working of transistor as a switch with waveform.

- 5. Attempt any TWO of the following:** **12**
- a) Draw the circuit diagram of RC coupled two stage amplifier and explain its working with its frequency response and write its two advantages, disadvantages and applications.
 - b) Draw and explain the construction and working principle of LED and write any two applications of it.
 - c) With neat construction diagram explain the operation of Depletion type N- channel MOSFET.
- 6. Attempt any TWO of the following:** **12**
- a) Draw the pinout diagram of IC 723 and describe the function of each pin. Write any 2 applications.
 - b) Draw and explain the drain and transfer characteristics of N-channel JFET.
 - c) i) Derive the relationship between α and β
ii) If α of a transistor is 0.9 calculate β .
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