

May-June-2011



[3961] – 112

F.E. (Semester – II) Examination, 2011
BASIC ELECTRONICS ENGINEERING
(2008 Pattern)

(For Students Admitted During the Academic Year 2009-2010 and Onwards)

Time : 2 Hours

Max. Marks : 50

- Instructions :** 1) *Neat diagrams must be drawn wherever necessary.*
2) *Black figures to the right indicate full marks.*
3) *Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is **allowed**.*
4) *Assume **suitable** data, if **necessary**.*

1. A) For a half wave rectifier derive the expression for the following :

- | | | |
|-------------|-------------------|---|
| 1) I_{dc} | 2) V_{dc} | |
| 3) P_{dc} | 4) Ripple factor. | 4 |

B) List different materials used in LEDs along with the colour of light emitted. 4

C) With the help of neat diagram explain the operation of p-channel JFET and sketch the output characteristics. 8

OR

2. A) Draw the circuit diagram of zener voltage regulator and explain how it gives line and load regulation. 8

B) Explain operation of BJT as a switch with neat circuit diagram. 4

C) Compare SCR and TRIAC. 4

3. A) Draw the 1 : 16 DEMUX logic circuit and explain its working with the help of truth table. 6

B) What is meant by universal gate ? By using any universal gate draw all the basic gates. 4

C) Draw and explain the operation of a) Voltage follower b) V-I converter. 6

OR

P.T.O.



4. A) Draw and explain the 8-bit ring counter using D flip-flops. 6
- B) For the inverting summing amplifier if following inputs are applied then calculate output voltage.
 $V_{in1} = 1.5 \text{ V}$ $V_{in2} = 3.5 \text{ V}$
Given that $R_1 = R_2 = R_F = 5.2 \text{ K}\Omega$. 4
- C) Draw the circuit diagram of integrator and explain its working. Draw the output waveform for square wave input. 6
5. A) List the different pressure transducers. Explain the working of any one in detail. 6
- B) Draw and explain electromagnetic spectrum. 6
- C) Write short note on CNC machine. 6

OR

6. A) Draw the block diagram of communication system and explain each block in detail. 6
- B) What is the need of modulation ? Explain frequency modulation in detail. 6
- C) Write short note on PLC. 6