5253

B.Tech. Examination, 2013

(First Semester)

(C.S. and I.T. Branch)

ELECTRONICS ENGINEERING

Paper - III

Time : Three Hours] **[Maximum Marks : 100**

Note :– Attempt any **five** questions. All questions carry equal marks.

1. (a) Sketch the circuit of a full wave rectifier. Explain the working of circuit with waveforms. 10

   (b) Draw the VI characteristics of PN junction Diode. Explain the effect of temperature on VI characteristics 10

2. (a) Explain briefly Km Voltage, zener break down and Avalanche breakdown in zener diodes.

   (b) Explain formation of barrier patential. Explain the energy band diagram of a PN junction diode. 10

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3. (a) An n-p-n transistor having current gain $\alpha = 0.90$ is connected in the CB mode and gives a reverse saturation current I_{co}=15μA. Calculate the bases and the collector currents for an emitter current of 4 mA. 10

(b) Draw and explain the I/P and O/P characteristics of CE configuration of the transistor. 10

4. (a) Explain the working of JFET with the I/P and O/P characteristics. 10

(b) Define :

(i) Pinch off voltage

(ii) Maximum drain current

(iii) Cut off voltage

5. (a) Draw the circuit of a subtractor using OP-Amp and explain its working. 10

(b) What is the OP-amp & write characteristics of an ideal OP-amp. 10

6. (a) Convert the following : 10

(i) 1101101

(ii) 0.1011

to decimal.

(b) What do you mean by universal gates? Explain with suitable diagram or with function. 10

7. (a) Explain the working of CRO with the help of block diagram. 10

(b) Explain the working of digital voltmeter with the help of block diagram. 10

8. Write short notes on any **three** : 20

(a) Lissajoos Patterns

(b) MOSFET

(c) h - Parameters

(d) OP-amp as adder

(e) Need for biasing.