Register Number:………………..

B.E DEGREE EXAMINATIONS DEC 2012

Second Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE103: Electronic Devices

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

Answer ALL Questions:-

PART A (10x1=10 Marks)

1. The process of adding impurities to intrinsic semiconductor is called

a. Ionization b. doping c. mixing d. crystallization.

2. The value of η for Silicon is

a. 0.3 b. 0.6 c. 1 d. 2

3. When the transistor is in ON state it is said that Transistor is

a. Short circuited b. open circuited c. Active d. Saturated

4. For every 10 ° C rise in temperature the Reverse Saturation current in transistor

a. increase 2 times b. increases 3 times c.decrases 2 times d. No change.

5. Input impedance of JFET will be in the order of

a. tens of ohms b. hundreds of ohms c. in Kohms d.in Mohms

6. UJT is constructed using

a. N type silicon bar

b. P type silicon bar

c. N type silicon bar with heavily doped P material

d. P type silicon bar with heavily doped N material

7. Photo electric emission occurs for wave length of 5893 A° if the minimum energy is

a. 2.11 eV b. 2.5 eV c.3.0 eV d. 1.5 eV.

8. Current density of Injection Laser Diode will be in the order of

a. nanoAmps/sq.cm b. milliamps/sq,cm c. Amps/sq.cm d. KAmps/sq.cm

9. Zener diode is always used as

a. Half wave rectifier b. Full wave rectifier c. Regulator d. Controlled rectifier.

10. Impurity concentration in Tunnel Diode is about

a. $1 \text{ in } 10^{9}$ b. $1 \text{ in } 10^{8}$ c. $1 \text{ in } 10^{7}$ d. $1 \text{ in } 10^{3}$

PART B (10x2= 20 Marks)

11. What is meant by Depletion region?
12. What is meant by Cutin Voltage of PN Junction diode?
13. Define β of a Transistor.
14. Draw the C.E. hybrid model of a Transistor.
15. List out two merits of FET over BJT.
16. How fft act as a van able restore.
17. Define Threshold wave length in Photoelectric devices.
18. What is meant by Darlington Photo Transistor?
19. Define Holding current in SCR.
20. What is meant by LDR?

PART C (5x14= 70 Marks)

21. a) (i) Explain the operation of PN Junction Diode with VI Characteristics. (7)
(ii) Write detailed notes on: Diode switching times. (7)

(OR)

b) (i) Derive an expression for Diffusion Capacitance of PN Junction diode. (7)
(ii) Discuss the Temperature effect of PN Junction diode. (7)

22. a) (i) With diagram explain the various current components of Transistor (7)
(ii) Explain Input characteristics of C.E transistor configuration. (7)

(OR)

b) (i) Define and explain the h-parameters of C.B. Transistor and discuss their importance.(7)
(ii) Write detailed note on: Power Transistors. (7)

23. a) (i) Give construction details and working principle of JFET. (7)

(ii) With neat diagram explain the operation of N-Channel enhancement type MOSFET (7)

(OR)

b) (i) Explain the principle of using FET as a Voltage Variable resistor. (7)

(ii) Explain the V-I characteristics of UJT. (7)

24. a) (i) Explain the principle of LED. (7)

(ii) Explain the principle of Photoconductive Cell. (7)

(OR)

b) (i) Explain the operation of LCD. (7)

(ii) Explain the operation of Laser Diode. (7)

25. a) (i) Explain the operation of SCR with two transistor model (8)

(ii) Write a note on : (i) Zener diode (3)

(ii) Varactor diode (3)

(OR)

b) (i) Explain of operation of Tunnel diode (8)

(ii) Write a note on : (i) Thermistors (3)

(ii) Charge coupled devices. (3)

****