Register No: ……

B.E.DEGREE EXAMINATIONS: MAY / JUNE 2011

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 Cutin Voltage of a Germanium Diode is approximately

A. 0.1 V B. 0.5 V C. 0.3 V D. 0.6 V

2. The reverse saturation current of Ge PN Junction diode is 0.3 μA. The forward current under a forward bias of 0.15 V will be

A. 9.6 mA B. 9.6 μA C. 96 μA D. 96 mA

3. A Transistor in C.B. configuration has

A. High input impedance and low output impedance

B. Low input impedance and High output impedance

C. Low input impedance and low output impedance

D. High input impedance and high output impedance

4. In a Transistor which of the following varies rapidly with temperature

A. Collect current B. Base current. C. Emitter current D. Reverse saturation current.

5. In JFET operating above Pinch-off Voltage the

A. Drain Current increases steeply B. Drain current remains practically constant

C. Drain current starts decreasing D. Depletion become smaller.

6. UJT can be used

A. as an amplifier B. to produce Sine waveform

C. as a Rectifier D. to produce Saw tooth waveform.

7. The minimum energy required to produce photo electric emission of wavelength 5000 Å will be

A. 2.00 eV B.1.50 eV C. 2.11 eV D.2.48 eV

8. The operating voltage range of LED is

A.1.2 to 5 V DC B. 1.2 to 5 V AC C. 3 to 20 V DC D. 3 to 20 V AC

9. SCR is a semiconductor device made up of

A. four N-type layers. B. two P-type layers three N-type layers

C. two P-type and two N-type layers. D. three P-type and one N-type layer.

10. Which of the following device has negative resistance characteristics

A. Zener Diode B. Tunnel Diode C. Varactor Diode D. PN Junction Diode

PART B (10x2 = 20 Marks)

11. What is meant by Reverse Saturation Current in Diode ?
12. Define Static resistance of a Diode .
13. Define β of a Transistor.
14. Draw C.B. Hybrid model of a Transistor.
15. What are the merits of FET over Junction Transistors.?
16. Define Intrinsic Stand off ratio of UJT.
17. Define Threshold wave length of photoelectric devices.
18. What is meant by Darlington Photo Transistor?
19. Define Holding current in SCR.
20. What is meant by Thermistor?

PART C (5x14= 70 Marks)

21. a) (i) Explain the V-I characteristics of PN Junction diode under forward and reverse bias conditions. (8)

(ii) Write short notes on : Diode switching times. (6)

(OR)

b) (i) Derive an expression for the Diffusion Capacitance of PN Junction diode under forward bias condition. (8)

(ii) Explain the effect of temperature on V-I Characteristics of Diode. (6)

22. a) (i) Explain the C.E input and output characteristics of NPN transistor. (8)

(ii) Explain the special features of Power Transistors. (6)

(OR)

b) (i) Define and explain the h-parameters of C.E.Transistor. (8)

(ii) Explain the term 'Base width Modulation'. (6)

23. a) (i) Explain the operation of JFET. (7)

(ii) Explain V-I Characteristics of UJT. (7)

(OR)

b) (i) Explain the principle of operation of Depletion type MOSFET. (7)

(ii) Explain the principle of using FET as Voltage Variable Resistor. (7)

24. a) (i) Explain the operation of Photo diode. (7)

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

(OR)

b) (i) Explain the principle of operation of LED. (6)

(ii) Write short notes on : 1. Solar Cell 2. Opto-couplers. (8)

25. a) (i) Explain the principle of PUT. (7)

(ii) Using Two transistor model explain the operation of SCR (7)

(OR)

b) (i) Explain the operation of Tunnel Diode. (8)

(ii) Write a note on: Charge coupled devices. (6)

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