

Reg. No. _____

Karunya University

(Karunya Institute of Technology and Sciences)

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – April/May 2010

Subject Title : ELECTRON DEVICES

Subject Code: EC201

Time : 3 hours

Maximum Marks: 100

Answer ALL questions

PART – A (10 x 1 = 10 MARKS)

1. Define cut in voltage of a diode.
2. Define diffusion capacitance.
3. What is the cutoff region in a transistor?
4. Define DC current gain.
5. What is the condition to be satisfied to go for approximate hybrid equivalent circuit?
6. Write the expression for the voltage gain taking into account the source resistance.
7. Write the applications of FET.
8. Draw the V-I characteristics of UJT.
9. What are the two types of LCD?
10. Write the formula for transition capacitance established in the Varactor Diode.

PART – B (5 x 3 = 15 MARKS)

11. Write the continuity equation of a diode.
12. What do you mean by thermal runaway?
13. Draw the approximate hybrid model for the common collector circuit.
14. Draw the V-I characteristics of SCR.
15. Draw the structure of TRIAC.

PART – C (5 x 15 = 75 MARKS)

16. Explain the energy band structure of conductor, insulator and semiconductor.
(OR)
17. Write short notes on:
 - a. Electron hole generation and recombination
 - b. Intrinsic and Extrinsic semiconductors.
18. Explain about the Ebers-Moll model and explain the expressions for V_E , V_C , and V_{CE} .
(OR)
19. Explain the terms
 - a. Emitter Junction Efficiency
 - b. Base Transport Factor and
 - c. Large Signal Current Gain
20. Draw the approximate hybrid model for the CB configuration and obtain the expression for A_i , A_v , R_i and R_o .
(OR)
21. Compare the current gain, voltage gain, input impedance and output impedance of CE with R_e and without R_e , CC and CB using approximate equations. Give comment on it.
22. Draw the Depletion MOSFET and explain its working principle.
(OR)
23. With neat diagram, explain the working principle of SCR.
24. With neat diagram, explain the working of DIAC.
(OR)
25. Explain the working of photo diode and photo transistor.