Code No. 2265

FACULTY OF ENGINEERING

B.E. 2/4 (CSE) I-Semester (Main) Examination, November / December 2012

Subject : Basics Electronics

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

Distinguish between (Q.No. 1 to 7)

1. Intrinsic and extrinsic semiconductors. (2)
2. Diffusion and Drift currents. (3)
3. BJT and FET (3)
4. Positive feedback and negative feedback. (2)
5. Differentiator and integrator. (2)
6. Circuits of HWR and FWR (3)
7. Photodiode and LED (2)
8. Draw the frequency versus gain characteristics of an amplifier with and without negative feedback. (3)
9. Why is SCR known as negative resistance device? (2)
10. What are the effects of negative feedback on amplifiers? (3)

PART – B (5x10=50 Marks)

11.(a) Explain what is meant by forward and reverse biasing a pn-junction diode. Draw the VI characteristics of the diode showing the same with the help of the diode equation. (5)

(b) A 230V, 50Hz voltage is applied to the primary of a 5:1 step down, center tapped transformer in a full wave circuit having a load of 900 Ω . Determine :
(i) DC voltage across the load
(ii) I_{dc}
(iii) DC power delivered to the load and
(iv) PIV across each diode (5)

12.(a) What are the three basic amplifier connections using BJTs compare voltage gain, current gain and input resistance of these three configurations? (5)

(b) Draw the VI characteristics of a zener diode and explain how it can be used as a voltage regulator. (5)

13.(a) What are the LC type of oscillators? Explain the principle of operation of any of those with a neat diagram. (5)

(b) Explain the different properties of negative feedback amplifiers. (5)

14.(a) What is a half subtractor? Realize a full subtractor using NAND gate only. (5)

(b) What are the different parameters of an op-amp? Sketch the circuit of a summer using op-amp 741 to get $V_o = -(-V_1 + 2V_2 - 3V_3)$. (5)

15.(a) What are the different types of transducers used for the measurement of temperature? Explain the principle of any of these. (5)

(b) Draw the symbol of a SCR and VI characteristics, explain its principle of operation. (5)

16.(a) Draw the circuit diagram of a Bridge rectifier and explain its operation with output waveforms. (5)

(b) What is meant by sensitivity in a CRO and explain the necessity of a sawtooth generation in a CRO. (5)

17. Write short notes on any three: (10)
(a) Inverter circuits (b)Slew rate in op-amp
(b) Photo diode (d) Basic logic gates

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