Code No.: 209

FACULTY OF ENGINEERING

B.E. II/IV Year (CSE) I Semester (Supplementary) Examination, May / June 2009

BASIC ELECTRONICS

Time : 3 Hours] [Max. Marks : 75

Answer **all** *questions from Part A.*
Answer **five** *questions from Part B.*

Part – A (Marks : 25)

1. Define the terms :
   (i) Mobility
   (ii) Diffusion
   (iii) Drift current. 3
2. Draw the circuit diagram of a bridge rectifier and explain its working. 3
3. Define μ, rd, & gm of an FET and show that μ = rd.x gm 3
4. What is meant by the quiescent point of a transistor amplifier. 3
5. What is a load line? Explain its significance. 2
6. What are advantages of negative feedback. 2
7. What is the Barkhausen criterion ? State the basic conditions for oscillations in feedback amplifier. 2
8. Give the Boolean expressions for 'OR', "AND' & 'NOT' functions. 2
9. Define CMRR and what is its importance in op-amp. 2
10. Draw the block diagram of a General purpose CRO and indicate its basic components. 3

Part – B (Marks : 50)

11. (a) Draw the circuit diagram of a HWR and explain its working and define Idc. Irms ripple factor & efficiency. 5
    (b) Qualitatively explain the existence of capacitance in a p n junction diode when it is forward biased and when it is reverse biased. 5

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12. (a) Define h – parameters of a BJJ in CE configuration. How does these parameters change with temperature and biasing parameters ? Explain. 5

(b) Draw the Schematic of P- channel JFET and explain the different regions in the static drain characteristics. How do you determine the JFET parameters (μ, rd & g m). 5

13. (a) Explain with the help of block diagram the working principle of a Feedback amplifier. Find out an expression for the voltage gain with feedback. 5

(b) Draw the circuit diagram of Hartley oscillator and explain its working and give the expression for condition for oscillations and frequency of oscillations. 5

14. (a) Give the logical symbols, Boolean expressions and the truth tables of a two input NOR and two input NAND gate. 4

(b) Explain how an op-amp can be used as summer, Integrator and voltage to current converter with the help of diagrams. 6

15. (a) In connection with a CRO, explain the following terms (i) Sweep voltage (ii) Synchronization (iii) Time base. 6

(b) Explain the working of strain gauge with a neat diagram. 4

16.(a) Draw the structures of UJT and explain its principle of operations. Plot its characteristics and explain the significance of negative resistance. 5

(b) Draw the circuit diagram of weins bridge oscillator and explain its operations. 5

17 (a) Explain how Zenear diode can be used as a regulator what is meant by load regulation & line regulation. Explain. 5

(b) Draw the full wave rectifier circuit with capacitor input filter and explain how ripple can be eliminated? Show the relevant wave forms with and without capacitor filter. 5