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2nd Sem / Comp, ECE IT, I & control , Mechatronics, Med. Eltx, Eltx & Instr., Power Eltx, EEE

Subject:- Basic Electronics / Analog Elx.

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 Atomic number of Germanium is_____ (CO1)

a) 12 b) 14

c) 18 d) 32

Q.2 In P type semiconductors,_____are the minority carriers (CO1)

a) Electrons b) Holes

c) Both

Q.3 Full wave rectifier has ripple factor value of _____ (CO2)

a) 0.4 b) 0.8

c) 1.2 d) 1.6

Q.4 The knee voltage for Si is _____volt (CO2)

a) 0 b) 0.3

c) 0.7 d) 1

Q.5 Donor type semiconductor is formed by adding impurity of valences_____ (CO1)

a) 3 b) 4

c) 5 d) 6

Q.6 For buffers, the configuration of transistor used is _____ (CO3)

a) CE b) CB

c) CC

Q.7 In CE configuration, power gain is_____ (CO3)

a) less than unity b) low

c) medium d) high

Q.8 Thermal Runway can be avoided by checking the increase of _____ current with temperature. (CO4)

a) I_C b) I_B

c) I_E d) I_{CBO}

Q.9 A FET has _____terminals (CO6)

a) 1 b) 2

c) 3 d) 4

Q.10 The FET has_____ (CO6)

a) Large input impedance

b) Large output impedance

c) Large power gain

d) High voltage gain

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define a covalent bond. (CO1)

Q.12 Intrinsic semiconductors are _____(pure/impure). (CO1)

Q.13 Draw the symbol of PNP transistor. (CO3)

Q.14 Define an ideal diode. (CO2)

Q.15 Define current gain in transistor? (CO3)

Q.16 Define depletion layer. (CO2)

Q.17 Write any one advantage of JFET. (CO6)

Q.18 Define PIV in diodes. (CO2)

Q.19 Define thermal runaway. (CO4)

Q.20 Expand MOSFET. (CO6)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Draw & Explain the atomic structure of Silicon. (CO1)

Q.22 How current flows in Intrinsic semiconductors. (CO1)

Q.23 Draw half wave rectifier, what is its ripple factor? (CO2)

Q.24 Draw & Explain diode characteristics. (CO2)

Q.25 Compare CE & CC configuration. (CO3)

Q.26 Show how LC filter works? (CO2)

Q.27 Draw & explain the output characteristics of CE configuration. (CO3)

Q.28 Define Biasing of transistor, why it is needed? (CO4)

Q.29 What is need of stabilization of operating point? (CO4)

Q.30 Draw the circuit diagram of Single stage amplifier. (CO5)

Q.31 Draw biasing arrangement with emitter feedback. Give its advantages. (CO4)

Q.32 What are the advantages & applications of CMOS? (CO6)

Q.33 Draw the clamper circuit, show its waveform. (CO2)

Q.34 Explain in detail the "avalanche breakdown". (CO2)

Q.35 Show how Zener diode works as regulator. (CO2)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Draw & explain in detail the Energy band diagram of metals, semiconductors & insulators. (CO1)

Q.37 Show how phase reversal of signal takes place in the output of single stage amplifier? (CO5)

Q.38 Explain the operating principle of FET by drawing its characteristics. (CO6)

(**Note:** Course outcome/CO is for office use only)