No. of Printed Pages : 4
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220933

3rd Sem. / Electrical

Subject : Analog & Digital Electronics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The number of valence electrons in trivalent impurity are (CO-1)

a) 6 b) 5

c) 4 d) 3

Q.2 A JFET is a _____ device. (CO-2)

a) Unipolar b) Bipolar

c) Both a and b d) None of the above

Q.3 What is the rectifier's efficiency of half wave? (CO-2)

a) 40% b) 40.6%

c) 81% d) 81.6%

Q.4 An inverter is also called as _____ gate. (CO-3)

a) NAND b) NOT

c) NOR d) AND

Q.5 The basic storage element in digital systems is (CO-4)

a) Counter b) Encoder

c) Flip Flop d) Mux

Q.6 The number of select lines for 1:16 DEMUX are _____ (CO-4)

a) 1 b) 4

c) 2 d) 3

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 PIV stands for _____ (CO-1)

Q.8 MOSFET stands for _____ (CO-2)

Q.9 Draw symbol of npn transistor. (CO-2)

Q.10 10110-10010 = _____ (CO-3)

Q.11 The modulus of 4 bit binary counter is _____ (CO-4)

Q.12 SIPO stands for _____ (CO-4)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Discuss effect of temperature on the conductivity of intrinsic semiconductors. (CO-1)

Q.14 Draw and explain v-I characteristics of a pn junction diode. (CO-1)

Q.15 Explain how a shunt capacitor removes the ripple. (CO-1)

Q.16 Give the input and output characteristics of transistor in CB configuration. (CO-2)

Q.17 Differentiate between BJT and JFET. (CO-2)

Q.18 Do the following conversions (CO-3)

i) $(75)_8 = (?)_2$

ii) $(1C2)_{16} = (?)_{10}$

Q.19 Explain AND gate with truth table. (CO-3)

Q.20 Discuss about half adder circuit. (CO-4)

Q.21 Write a short note on 1:8 DE-MUX. (CO-4)

Q.22 Write a short note on RS FF. (CO-4)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Define a rectifier. Discuss about the types of rectifier. Explain any one in detail. (CO-1)

Q.24 Explain in detail working of 4 bit synchronous / asynchronous counter. (CO-4)

Q.25 Write short note on the following.

a) Transistor as an amplifier in CE configuration. (CO-2)

b) NOR gate as universal gate. (CO-3)

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