No. of Printed Pages : 4 220933
Roll No. .....

3rd Sem / Electrical Engg.

Subject:- Analog & Digital Electronics

Time : 3Hrs. M.M. : 60

SECTION-A

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

Q.1 The efficiency of a half wave rectifier is (CO1)

a) 81.2% b) 100%

c) 50% d) 40.6%

Q.2 A nibble represents _____ bits. (CO3)

a) 3 b) 2

c) 4 d) 8

Q.3 In a p-channel JFET, the charge carries are ____ (CO2)

a) holes

b) electrons

c) both electrons and holes

d) none of the above

Q.4 The output of XOR gate is high when (CO3)

a) both the inputs are high

b) both the inputs are low

c) Both the inputs have different values

d) none of these

Q.5 A 32:1 MUX has _____ select lines (CO4)

a) 6 b) 5

c) 4 d) 7

Q.6 Which of the following is a sequential circuit? (CO4)

a) Adder b) Multiplexer

c) Decoder d) Counter

SECTION-B

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

Q.7 A N-type semiconductor is formed by adding _____ impurity. (CO1)

Q.8 The collector is _____ doped. (CO2)

Q.9 A flip-flop is a _____ device. (monostable/bistable) (CO4)

Q.10 MOSFET stands for _____. (CO2)

Q.11 A 3-bit counter can count _____ number of events. (CO4)

Q.12 Draw symbol of NOR gate. (CO3)

SECTION-C

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

Q.13 Differentiate between intrinsic and extrinsic semiconductors. (CO1)

Q.14 Explain half wave rectifier in brief. (CO1)

Q.15 Describe the mechanism of current flow in PN junction. (CO1)

Q.16 Compare CB, CE and CC configurations of a transistor. (CO2)

Q.17 Define FET. What are the advantages of FET over a bipolar junction transistor? (CO2)

Q.18 a) Add the binary numbers : 111011 + 110010

b) Convert : $(89)_{10} = (?)_2$ (CO3)

Q.19 Explain NAND gate with truth table. (CO3)

Q.20 Explain full adder with the help of truth table and logical expression. (CO4)

Q.21 Define multiplexer. Design a 4:1 MUX. (CO4)

Q.22 Explain the operation of SR flip-flop using NAND gate. (CO4)

SECTION-D

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

Q.23 Differentiate between conductors, insulators and semiconductors on the basis of energy band diagram. (CO1)

Q.24 Write a short note on: (CO2)

a) Transistor as an amplifier in CE configuration

b) MOSFET

Q.25 Explain in detail the working of 3-bit synchronous counter. (CO4)

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