Total No. of Questions : 8] *[Total No. of Printed Pages : 4*

Roll No .....

CS/CT/CO/CI-304-CBGS

B.Tech., III Semester

Examination, June 2020

Choice Based Grading System (CBGS)

CS-304: Digita Systems

CI-304: Digital Circuits and System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

iii)In case of any doubt or dispute the English version question should be treated as final.

1. a) What is Boolean Algebra? Compare it with Karnaugh map. Also simplify the following expression using k-map. 7

$$y = \overline{A}\,\overline{B}\,\overline{C} + B\,\overline{C} + A\,\overline{B}$$

$a|&

$$y = \overline{A}\,\overline{B}\,\overline{C} + B\,\overline{C} + A\,\overline{B}$$

b) What are the universal Gate? Why we call them universal? Explain it with examples. 7

2. a) What are the weighted code? Explain any two weighted code. 7

   b) If X = 111.101 and Y = 101.110. Calculate x + y, and x–y and y–x by 2's complement method. 7

3. a) What is the difference between combinational circuit and sequential circuit? Explain. 7

   b) Implement the function

   $f(A,B,C,D) = \sum(0,1,5,7,10,14,15)$ using 8:1 multiplexer. 7

   8:1

   (,)

4. a) What is decoder? Explain BCD to decimal decoder. 7

   b) Design a combinational circuit to convert the binary input ABCD to gray code. 7

5. a) Explain synchronous and Asynchronous counter. 7

b) What is Flip-Flop? Explain Master Slave J-K flip-flop. 7

|

6. a) Write short notes on 7

i) Semiconductor memories

ii) DRAM

b) Draw and explain astable multivibrator? 7

A

7. a) Implement the following circuit using CMOS logic 7

i) Y=A . B

ii) Y = A + B

OR

i) Y =A . B

ii) Y = A + B

b) With a neat diagram, explain the operation of 8 bit successive approximation ADC. 7

8. Explain any two 14
   i) Sampling theorem
   ii) PCM
   iii) TTL
   iv) BPSK

******