Roll No. .....

# DD-2873 (SE)

## B. C. A. (Part III) EXAMINATION, 2020

Paper Third

COMPUTER SYSTEM ARCHITECTURE

*Time : Three Hours*

*Maximum Marks : 50*

**Note :** Answer any *two* parts from each question. All questions carry equal marks.

1. (a) Perform the following operations : 5

   (i) $(3BC)_{16} = (\ )_2$

   (ii) $(9)_{10} - (5)_{10}$ by using 1's complement

   (b) Convert the following : 5

   (i) $(1101)_2 = (?)_{gray}$

   (ii) $(101101)_{gray} = (?)_2$

   (iii) $(69)_{10} = (?)_{Excess\ 3}$

   (iv) $(74)_{10} = (?)_2$

   (v) $(8BE)_{16} = (?)_8$

   (c) Describe Hamming code with a suitable example. 5

2. (a) Describe Logic gates XOR, NOR, NAND, XNOR and AND with truth table and logic diagram. 5

(b) Explain T Flip-Flop with truth table and logic diagram. 5

(c) Simplify the following using K-Map : 5

$F(A, B, C, D) = \pi M (0, 1, 4, 5, 14, 15)$

3. (a) Explain Macro Computer system with a block diagram. 5

(b) Describe Data bus, Address bus and Control bus in details. 5

(c) Explain SMPS. What is its use ? 5

4. (a) Differentiate between synchronous and asynchronous data transfer. 5

(b) Describe the properties of simple I/O devices and their controller. 5

(c) Write a short note on I/O organization. 5

5. (a) Write short notes on the following : 5

(i) Magnetic Drum

(ii) Disk and Tape

(b) Explain Page replacement in details. 5

(c) Describe the concept of Associative Memory. 5

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