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19/188-C

B.C.A. (First Semester) Examination, 2019

Paper : Second (102)

(Computer Organisation)

Time : Three Hours] *[Maximum Marks : 70*

Note : Attempt questions from **all** sections as per instructions.

(Section - A)

Note : Attempt **all** parts of this question. Give the answer of each part in about 50 words. 1.5×10=15

1. (i) What is bus? What are its classifications?
   (ii) Define hit ratio.
   (iii) What do you mean by EPROM?
   (iv) What do you mean by instruction cycle?
   (v) How many 128×8 RAM chips are needed to provide a memory capacity of 2086×16 words?
   (vi) Define the need for an I/O interface.

(vii) What is strobe?
(viii) What is BCD?
(ix) What is the purpose of cache memory in a computer?
(x) Define Associative memory.

(Section - B)

Note : Attempt **all** questions. Give answer of each question in about 200 words. 7×5=35

2. Do the following conversions :
   (i) $(1325.35)_{10} = (\quad)_2$
   (ii) $(FEDA)_{16} = (\quad)_8$
   (iii) $(001110101.10)_2 = (\quad)_{10}$
   (iv) $(756457)_8 = (\quad)_2$

OR

Simplify the following Boolean function using SoP form, using K-map

F(A, B, C, D) = (0, 1, 3, 5, 7, 9, 10, 12, 14).

3. Explain Paging technique with the help of a numerical example.

OR

Explain the functioning of JK Flip Flop with logic diagram.

4. Differentiate between :
   (i) RAM and ROM
   (ii) Minterms and Maxterms

OR

What is memory hierarchy? Explain virtual memory.

5. Explain one-address, 2-address and 3-address instructions related to CPU organizations.

OR

Write a short note on Data transfer and manipulation instructions.

6. What is an interface? Explain the functions of an I/O interface.

OR

Explain MUX and DMUX with proper diagram.

(Section - C)

(Long Answer Type Questions)

Note : Attempt any **two** questions. Give answer of each question in about 500 words.

$10 \times 2 = 20$

7. Discuss the programmed I/O method for controlling input output operations.

8. What is the purpose of counters? Draw the logic diagram of a 3 bit synchronous counter.
9. What is the need of an Input/Output processor? Suggest a method by which an Input/Output processor can be connected to slow devices.
10. What is an addressing modes? Why addressing modes are required in a machine? Explain any three addressing modes by taking suitable example.
11. Write short notes an any **two** of the following:
    (i) Full adder
    (ii) Instruction format
    (iii) Hand shaking