K (Printed Pages 4)

23/156-C

B.C.A. (First Semester) Examination, 2023

Paper : II

B.C.A.-102

(Computer Organization)

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

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

Section-A

Note : Answer **all** parts of this question. Give answer of each part in about **50** words.

$1\frac{1}{2} \times 10 = 15$

1. (i) Define minterm and maxterm.

   (ii) Define computer organization.

   (iii) List the types of memory.

   (iv) Define bus.

P.T.O.

(v) What is a operation code?

(vi) What is half adder?

(vii) What is virtual memory?

(viii) What is register?

(ix) What is meant by instruction?

(x) What are peripheral devices?

Section-B

Note : Answer **all** questions. Give answer of each question in about **200** words.

$7 \times 5 = 35$

2. Convert the following numbers

   (a) $(0101101)_2 = (?)_8$

   (b) $(7AE)_{16} = (?)_2$

   (c) $(3076)_8 = (?)_{10}$

   (d) $(12676.25)_8 = (?)_{10}$

OR

Explain Gray code, BCD code and Ex-3 code with example.

3. With a neat sketch explain the working of multiplexer and demultiplexer.

OR

Discuss the memory hierarchy in computer system with regard to speed, size and cost.

4. Explain in detail about strobe control and handshaking method of asynchronous data transfer.

OR

What is flip flop? Explain the working of JK flip flop.

5. Write the k-map representation for the following and solve F(w,x-,y,z)=Σ(0,1,4,5,7,15,2,10).

OR

Explain the data transfer manipulation.

6. Describe full adder and its circuit diagram.

OR

Write a short note on memory management hardware.

Section-C

Note : Attempt any **two** questions. Give answer of each question in about **500** words. 10×2=20

7. What are addressing modes? Explain the various addressing modes with examples.
8. Discuss in detail about general register organization by taking suitable example.
9. Discuss various techniques used for modes of transfer.
10. Discuss the different mapping techniques used in cache memories and their relative merits and demerits.
11. Write short note on any **two** of the following:
    (a) Binary counters
    (b) IOP
    (c) Associative memory