

22/102-C

B.C.A. (First Semester)

Examination, 2022

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**(Very Short Answer Type Questions)**

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

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

1. (i) What is serial port?
- (ii) Explain the term Handshaking.
- (iii) Define the term BUS used in computer architecture.

P.T.O.

(2)

- (iv) What are the most common phrases of an instruction cycle?
- (v) Define memory hierarchy.
- (vi) What is Encoder?
- (vii) Describe truth table of NOR gate.
- (viii) Define the I/O interface unit.
- (ix) Define address bus.
- (x) What do you mean by DMA?

Section-B**(Short Answer Type Questions)**

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

 $7 \times 5 = 35$

2. Convert the following Numbers:

(a) $(10101)_2 = (?)_{10}$

(b) $(67)_{10} = (?)_2$

(c) $(6AC)_{16} = (?)_8$

(d) $(2085)_8 = (?)_{10}$

(e) $(1CE)_{16} = (?)_{10}$

OR

What is advantages of octal & Hexadecimal

22/102-C

(3)

numbers over binaries. Determine the base x : $(211)_x = (152)_8$.

3. State and prove the two basic De Morgan's theorems.

OR

✓ Explain with block diagram 1-2 line demultiplexer.

4. ✓ Differentiate between the characteristic of primary and secondary memory of computer.

OR

What is Cache Memory? How it reduces the mismatch of processor and main memory speed?

5. What is Input-Output processor? How it communicates with CPU.

OR

✓ What are different techniques of data transfer? Discuss their relative merits and demerits.

22/102-C

P.T.O.

(4)

6. What is address mode? Explain the advantages and disadvantages of various addressing modes.

OR

✓ How data transfer can be controlled using handshaking technique?

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. Explain different types of mapping functions in cache memory.
- ✓ 8. With a neat sketch explain the working principle of DMA.
9. Analyse the memory hierarchy in terms of speed, size and Cost.
10. Design 4-bit adder/subtractor and explain its function.
11. Prove that $(A+B+C)(A+B+C) = A+BC+BC$.
Draw the circuit diagram.

22/102-C