

S.No. : 357

BCA 4205

No. of Printed Pages : 04

Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 41107

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BCA Examination 2021-22

(Even Semester)

BASICS OF COMPUTER ORGANIZATION AND ARCHITECTURE

Time : Three Hours]

[Maximum Marks : 60

Note :- Attempt all questions.

SECTION - A

1. Attempt all parts of the following : 8×1=8
 - (a) What is control function in RTL?
 - (b) Define three state buffer.
 - (c) Write any two instructions of O-address instructions.
 - (d) Find 2's compliment of 78 (10).

[P. T. O.]

- (e) How many status registers in microprocessor-8085?
- (f) Define hit ratio in cache memory.
- (g) Write any one example of direct addressing mode.
- (h) What is the full form of DMA?

SECTION – B

2. Attempt any two parts of the following : $2 \times 6 = 12$

- (a) A computer has 32-instructions and 12-bit addresses if there are 250 two-address instructions how many one-address instructions can be formulated?
- (b) Draw and explain working of 4-bit common bus system using multiplexer.
- (c) What do you understand by Associative Memory? Explain with the help of a diagram.
- (d) Draw and explain pin-diagram of 8085 micro-processor.

SECTION - C

Note :- Attempt all questions from this section.

3. Attempt any two parts of the following : $5 \times 2 = 10$

- (a) Show the block diagram of hardware that implements the following register transfer statement :

$$T : R_2 \leftarrow R_1, R_1 \leftarrow R_2$$

- (b) Draw and explain the working of 4-bit arithmetic circuit.
- (c) Explain the instruction cycle with diagram.

4. Attempt any two parts of the following : $5 \times 2 = 10$

- (a) Convert the following numerical arithmetic expression into reverse polish notation and show stack operations for evaluating numerical result :

$$(3 + 4) [10 (2 + 6) + 8]$$

- (b) What is the use of addressing modes? Define indirect, register indirect, relative and auto increment mode with example.

[P. T. O.]

- (c) Differentiate between :
- (i) Hardwired Vs. Micro programmed
 - (ii) RISC Vs. CISC
5. Attempt any two parts of the following : $5 \times 2 = 10$
- (a) What is DMA? Draw and explain the working of DMA transfer.
 - (b) What do you mean by Memory Hierarchy?
 - (c) What is the use of mapping in cache memory? Explain set-associative mapping with suitable example.
6. Attempt any two parts of the following : $5 \times 2 = 10$
- (a) What is parallel processing? How it can be achieved in uniprocessor system?
 - (b) Explain the working of arithmetic pipe lining.
 - (c) Write a program in 8085 instructions to subtract two 8-bit number using two's complement.