

(Following Paper ID and Roll No. to be filled in your
Answer Books)

Paper ID : 214222

Roll No.

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M.C.A.

Theory Examination (Semester-II) 2015-16

COMPUTER ORGANIZATION

Time : 3 Hours

Max. Marks : 100

Section-A

1. Attempt all the parts. All parts carry equal marks. Write
answer of each part in short. (2×10=20)

- (a) What is microinstruction? Describe the microinstruction format.
- (b) Represent ± 21 decimal number in IEEE floating point representation.
- (c) Define addressing modes and explain them.
- (d) Discuss the advantages and disadvantages of micro programmed control unit.
- (e) Define two approaches to deal with multiple interrupts.

(1)

P.T.O.

- (f) What are the differences among sequential access, direct access, and random access?
- (g) Why do peripherals need special communication links to interface them with certain processing unit?
- (h) What is the difference between memory-mapped I/O and isolated I/O?
- (i) How data is transmitted in synchronous serial communication system?
- (j) What is Von-Neumann bottleneck? How can this be reduced?

Section-B

2. Attempt any five questions from this section. (10×5=50)

- (a) What are zero, one, two and three address instructions? Explain them with examples.
- (b) What is the significance of addressing modes? Describe various addressing modes with suitable examples.
- (c) What is Auxiliary Memory? Describe main types of auxiliary memory.

(2)

- (d) Describe the types of mapping used between cache memory and main memory.
- (e) When does a device interrupt occur? How does the processor allocate the device to the interrupt?
- (f) A computer has 32-bit instructions and 12-bit addresses. If there are 250 two-address instructions, how many one-address instructions can be formulated?
- (g) Discuss RISC and CISC with their advantages and disadvantages.
- (h) Explain the working and actions of DMA with the help of a suitable example.

Section-C

Note : Attempt any two questions from this section. (15×2 = 30)

3. What do you mean by processor organization? Discuss :
- (i) Single accumulator based processor organization
 - (ii) General register based processor organization
 - (iii) Stack based processor organization.

(3)

P.T.O.

4. An address space is specified by 24-bits and corresponding memory space by 16-bits.
- (i) How many words are there in the address space?
 - (ii) How many words are there in the memory space?
 - (iii) If a page consists of 2k words, how many pages and blocks are there in the system?
5. Write short note on:
- (i) Hit
 - (ii) Miss
 - (iii) Hit-ratio
 - (iv) Write through
 - (v) Write back
 - (vi) Page
 - (vii) Block
 - (viii) Address space
 - (ix) Memory space
 - (x) Valid bit