Printed Pages: 4 NMCA-215/NBC-204

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 214222	Roll No.

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.

(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.

(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.

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