

MCA (DUAL DEGREE)
(SEM VIII) THEORY EXAMINATION 2017-18
COMPUTER ARCHITECTURE

Time: 3 Hours**Total Marks: 100****Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt *all* questions in brief. 2 x 10 = 20**

- a. What do you mean by digital computer?
- b. What are various types of buses?
- c. Give infix to postfix conversion by taking an example.
- d. What do you mean by instruction cycle?
- e. What is array multiplier?
- f. Define RAM chips.
- g. Define cache memory.
- h. What are magnetic disks?
- i. What do you mean by interrupts?
- j. Define synchronous communication.

SECTION B**2. Attempt any *three* of the following: 10 x 3 = 30**

- a. Discuss various generations of computer.
- b. Explain various functional units and their interconnections.
- c. Explain execution of complete instruction with example.
- d. Write short note on semi-conductor RAM memories.
- e. Explain DMA transfer and DMA controller.

SECTION C**3. Attempt any *one* part of the following: 10 x 1 = 10**

- (a) Design and discuss look-ahead carry adder.
- (b) Discuss signed operand multiplication.

4. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Discuss register stack and memory stack organizations.
- (b) Explain various types of instruction format with example.

5. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Explain micro-instruction with next address field.
- (b) Discuss concept of horizontal and vertical micro-programming.

6. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Discuss various types of cache memory mapping techniques.
- (b) Explain various page replacement policies.

7. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Write short note on various peripheral devices.
- (b) Explain I/O channels and I/O processors.