

**MSCCS-08/MSCCS-202/MCA-202**

December - Examination 2018

**MSCCS-Final/MCA-IIInd Year Examination****Computer Architecture and Micro Processors****Paper - MSCCS-08/MSCCS-202/MCA-202****Time : 3 Hours ]****[ Max. Marks :- 100**

**Note:** The question paper is divided into three sections A, B and C. Write answers as per given instructions.

**Section - A****10 × 2 = 20**

(Very Short Answer Questions)

**Note:** Answer **all** questions. As per the nature of the question delimit your answer in one word, one sentence or maximum upto 30 words. Each question carries 2 marks.

- 1) (i) What is subroutine?
- (ii) If clock rate is 150 MHz, what is the cycle time?
- (iii) Define the term *Scalability*.
- (iv) Give two examples of one address instructions.
- (v) Define the term 'memory access time'.
- (vi) What is a OPCODE?
- (vii) What is speed-up ratio in pipelined processor?
- (viii) What is the full form of RAID?

- (ix) What do you mean by accumulator?
- (x) What do you understand by 'hazard' in a pipelined processor?

**Section - B****4 × 10 = 40**

(Short Answer Questions)

**Note:** Answer **any four** questions. Each answer should not exceed 200 words. Each question carries 10 marks.

- 2) Explain a crossbar switch. Compare its advantages over a hypercube network.
- 3) What is Bus? Explain Address, Data and Control Bus with suitable example.
- 4) What do you understand by an instruction pipeline? Mention the typical stages of such a pipeline.
- 5) With reference to cache memory, explain following terms:
  - (i) Locality of reference
  - (ii) Hit ratio and miss
  - (iii) Mapping
- 6) Discuss the basic processor organization with neat diagram.
- 7) Define Virtual Memory. Explain in detail the virtual memory system giving the mapping of virtual address to physical address.
- 8) Explain the advantages and applications of Microprogramming.
- 9) What is Interrupt? How to write a Interrupt subroutine? Explain with suitable example.

**Section - C****2 × 20 = 40**

(Long Answer Questions)

**Note:** Answer **any two** questions. You have to delimit your each answer maximum upto 500 words. Each question carries 20 marks.

- 10) How does DMA work? Explain the term:
- (i) bus request
  - (ii) bus grant
  - (iii) burst transfer, and
  - (iv) cycle stealing
- 11) What is Arithmetic Logic Unit? Distinguish between Combinational and Sequential Arithmetic Logic Unit.
- 12) Differentiate between CISC and RISC architectures. What are their typical characteristics? Give some examples(s) of processors of each category.
- 13) Explain the organisation of stack in detail. Consider the arithmetic operation  $((3*4)-(5+6))$ . Explain how the expression in reverse polish notation can be evaluated using a stack.
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