

Roll No. 81491750

67057

M.C.A. 2nd Semester
(CBCS Scheme) w.e.f. 2016-17

Examination- May, 2017

COMPUTER ORGANIZATION AND
ARCHITECTURE

Paper-MCA-202 (HC)

Time : 3 hours

Max. Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Question No. 1 is **compulsory**. Apart from it, attempt **four** questions by selecting **one** question from each unit. All questions carry equal marks.

1. Compulsory question [8×2=16]

(a) What is a microprogram ? What is its significance ?

(b) What are Instruction Formats ? State their relevance.

- (c) Differentiate between RISC and CISC.
- (d) What is interleaved memory organization ?
- (e) What is a microprogram ? How is it different from program ?
- (f) What are Bernstein's conditions for parallelism ?
- (g) Differentiate between computer organization and architecture.
- (h) What is the significance of RTL ?

UNIT-I

- 4
2. (a) What is the structure of an 8086/8088 Assembly Language program ? Outline the purpose of each element. [8]
- (b) What is Instruction Cycle ? What are various sub-cycles in an Instruction Cycle ? Also outline the steps performed during each of these sub-cycles. [8]
3. (a) What are addressing modes ? What are various types of addressing modes for 8086/8088 microprocessor ? Explain. [8]

- (b) What is meant by an Instruction Set ?
What are the elements of an instruction ? How an instruction is represented ? Explain. [8]

4 UNIT-II

4. (a) What are micro-operations ? What are its various types ? Illustrate the implementation of each category of micro-operations through its block diagram(s). [8]
- (b) What is a control unit ? What is microprogrammed design of control unit ? Illustrate its working. [8]
5. Explain the following:
- (a) Superscalar architecture [8]
- (b) CPU Registers [8]

3 UNIT-III

6. (a) Which I/O technique is used for heavy data transfer and why ? Illustrate its working in detail. [8]
- (b) What is an I/O module ? What are the functions performed by an I/O

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module ? Illustrate the general structure of an I/O module. [8]

7. Explain the following :

(a) I/O Processor [8]

(b) Memory hierarchy and its significance [8]

UNIT-IV

8. (a) What are array processors ? How are these designed ? Illustrate. [8]

(b) What do you mean by Vector Processing? State its significance and also enumerate certain applications that demand Vector Processing. [8]

9. (a) What is Pipelining ? When, where and why is it necessary ? Also differentiate between the Instruction Pipelining and Arithmetic Pipelining. [8]

(b) What are parallel computers ? How are these classified ? Discuss. [8]

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