UNIT – IV

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

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

9. (a) What are parallel computers ? How are these classified ? Discuss. 8

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

Roll No. .....

67057

MCA 2nd Semester CBCS Scheme

w. e. f. 2016-17

Examination – May, 2019

COMPUTER ORGANIZATION AND ARCHITECTURE

Paper : 16MCA32C2

Time : Three Hours] *[Maximum 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 examination.

Note : (i) Question No. **1** is ***compulsory***. Apart from it, attempt ***four*** questions by selecting ***one*** question from each Unit.

(ii) All questions carry equal marks.

1. (a) What is interleaved memory organization ? $2 \times 8 = 16$

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

(c) What is the significance of RTL ?

(d) Differentiate between RISC and CISC.

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

(f) Differentiate between computer organization and architecture.

(g) What is a microprogram ? How is it different from program ?

(h) What are Bernstein's conditions for parallelism ?

UNIT – I

2. (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

3. (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

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

UNIT – III

6. (a) Which I/O technique is used for heavy data transfer and why ? Illustrate its working in details. 8

(b) What is an I/O module ? What are the functions performed by an I/O module ? Illustrate the general structure of an I/O module. 8

7. Explain the following :

(a) Memory hierarchy and its significance 8

(b) I/O Processor 8