67072

MCA 2nd Sem. (with new notes) w.e.f. May, 2013

Examination–May, 2015

Computer Organization & Architecture (New)

Paper-MCA-202

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**. Attempt any **four** more questions from Unit-I to Unit-IV, selecting **one** question from each unit. All questions carry equal marks.

[8×2=16]

1. (a) What are language translators?

(b) Define registers and basic rules followed in RTL.

(c) Explain the working principle of Booth's algorithm.

(d) How floating point representation is different from fixed point representation?

(e) Why and where Stack Pointers are used?

(f) What do you understand by Program Control instructions. Give two examples.

(g) Name any two such hardwares which are used for managing the memory.

(h) Explain the concept of Braches in pipeline.

Unit-I

2. (a) Name various functional units of a computer system. Describe their working in the sequential order by taking a case study. 8

(ii) Define buses. List down various factors based on which these can be classified. 8

3. (a) Explain the following: Micro instruction, Instruction, Micro operation and Operation. 8

(b) Explain the concept from hardwired and micro-programmed control, which is best suitable for very complex system in terms of its size and structure. 3 8

Unit-II

4. Explain the algorithm for performing Binary Substraction of Signed numbers. Write down various hardware required for this operation. Also draw the logocal diagram for it. 16

5. (a) Explain the Stack Full and Stack Empty conditions of Stack organization. 8

(b) Diagrammatically explain the concept of General Register Organization. Why decoders are required in managing registers in the system? 8

Unit-III

6. Mention three basic components required for any type of data transfer. Differentiate asynchronous data transfer from synchronous data transfer. List down various signals used in these transfers. 16

7. (a) How parallel processing enhances the system performance, explain? 4 8

(b) Describe the working and advantages of Virtual Memory. 8

Unit-IV

8. (a) Explain various architectural schemes. Also, inculcate their advantages and applications with every architecture. 8

(b) How usage of Associative memory increase the system's overheads? 8

9. Explain how arithmetic operations can be performed by using pipelining. List down various design priciples and problems faced during its formulation. Explain the concept with an appropriate example. 16