Roll No. ....

97628

B.C.A. 3rd Semester (New) (Regular)

Examination–December, 2012

Computer System Architecture

Paper-BCA-201

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 : Attempt any **five** questions in all. All questions carry equal marks.

1. (a) What do you understand by Inter-process Communication (IPC) ? What is synchronization ? When and why is it needed ? How the same is achieved ? Explain. *8*

(b) What is a Ring-counter ? How does it differ from Binary-down Counter ? State the usefulness of each and explain working of Binary-down counter. 8

2. (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 Shift-register ? Show how a shift-register with parallel load can be used to convert parallel input to serial outputs and serial inputs to parallel output. 8

3. (a) What do you understand by Inter-processor Arbitration ? How does Parallel Arbitration technique differ from Serial Arbitration technique ? Illustrate. 8

(b) Is programmed I/O technique not suitable for voluminous data transfer ? If not, then illustrate the suitable technique for this purpose through its block diagram.

module alongwith its block diagram depicting its structure. 8

(b) What is a microprogramming ? How does it differ from programming ? Write down at least two micro programs of your choice explaining all its steps. 8

7. (a) What is a Control Unit ? What are the basic functions of Control Unit ? What is the general model of a Control Unit ? Illustrate a CPU indicating all its functional units and corresponding control signals. 8

(b) What do you mean by Array Processors ? What are various types of array processors ? How do they principally differ from each other ? 8

8. (a) What is Cache Coherence ? Why does it occur ? Briefly discuss at least two techniques to overcome Cache Coherence problem. 8

(b) Differentiate between sequential and combinatorial circuit. Design the circuit of a full-adder. Illustrate its use. 8
