

BCA Second Semester Examination May-2016**FOURTH PAPER****Computer Architecture**

Paper Code:- 2741

Time Allowed: Three Hours**Maximum Marks.70**

(1) No supplementary answer book will be given to any candidate. Hence the candidates should write the answers precisely in the main answer book only.

(2) All the parts of one question should be answered at one place in the answer book.

(Attempt all six questions.)

Part I (Question No. 1 & 2) is compulsory & Part II (Question No. 3, 4, 5 & 6) has internal choice.

Part-I

1. Answer any 10 questions. Each question carries 1 mark.

10x1= 10

(Word limit up to 20 words each)

- What is an Encoder ?
- Write De-Morgan's laws of Boolean Algebra.
- What do you mean by System Bus ? List different types of buses.
- Draw the truth table and Circuit of exclusive OR (XOR) gate.
- What is serial Communication ?
- What is Sequential Circuits ?
- What is edge triggered flip-flops ?
- What are the various types of operations required for instructions ?
- What is an absolute addressing mode ?
- What is virtual address space ?
- What is a Cache Memory ? Explain its role.
- What do you mean by Interrupts ?

2. Answer all the questions. Each question carries 5 marks.

4x5 = 20

(Words limit up to 50 words each)

- What is Logic Gate ? Explain various logic gates with their logic operations.
- What is JK flip-Flop ? What are its advantages over SR flip-flop ?
- What is an instruction ? Explain instruction execution cycle.
- What is I/O Processor ? Explain I/O Processing through I/O Processor.

P.T.O:

Part-II

Unit-I

3. What do you understand by Combinational logic circuits ? How combinational Ckts are designed ? Explain procedure to construct segment decoder. **10**

OR

- (a) Explain full subtractor with the help of logic diagram and truth table. **5**
(b) What is Multiplexer ? Describe 2x4 multiplexer with logic diagram. **5**

Unit-II

4. Explain S-R Flip-Flop with their execution tables and logic circuit diagrams. **10**

OR

- (a) Differentiate between Asynchronous and Synchronous counters. **5**
(b) Explain working of BCD counter with the help of logic diagram. **5**

Unit-III

5. How an Instruction can be defined ? Discuss Instruction Format, instruction types and instruction sequencing in detail. **10**

OR

- What is addressing mode ? Why do computer system require addressing mode techniques ? Explain Relative addressing mode with an example. **10**

Unit-IV

6. What is Direct Memory Access ? How DMA Works ? Explain DMA Controller in detail with its functional diagram. **10**

OR

Write short note on any two of the following : **2x5=10**

- (a) Virtual Memory & Paging
(b) Associative Memory Concepts
(c) Memory Organization & Hierarchy
