2019

BCA

2nd Semester Examination

Computer Organization & Architecture

Paper – 1201

Full Marks – 70

Time : 3 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.
*Question No. **1** and any **four** from the rest.*

1. Answer any **five** questions : 2×5

   (a) What are the limitations of CISC architecture processor ?

   (b) Why NAND gate is called universal gate ?

   (c) State and prove distributive law.

   (d) What do you mean by micro instruction ?

(e) What is addrassing mode of an instruction ?

(f) What is bus ?

(g) What is tri state device ?

(h) Define flash memory.

2. (a) Evalute the following statement 9

$$x = \frac{A - B + C*(D*E - F)}{G + H*K}$$

(i) Using a general register computer with three address instructions.

(ii) Using zero address instructions.

(iii) Using one address instructions.

(b) Explain different type of addressing modes of instruction. 6

3. (a) Compare horizontal and vertical micro instruction. 6

(b) A digital computer has a common bus system for 16 registers of 32 bit each. The bus is constructed with multiplexers. 9

(i) How many selection inputs are there in each multiplexer ?

(ii) What size of multiplexer needed ?

(iii) How many multiplexers are there in the bus ?

4. (a) Explain the use of the following registers for a digital computer : 3×3

(i) IR (ii) SP (iii) MAR

(b) What do you mean by 'control memory' ? 4

(c) What is DMA ? 2

5. (a) Draw the block diagram of a 4-bit arithmetic circuit and deduce the different arithmetic function performed by it. 8

(b) Can a decoder be a replacement for multiplexer ? state your reason. 4

(c) What is the advantage of virtual memory ? 3

6. Write short notes (any **three**) : 5×3

(a) SISC

(b) ALU

(c) DMA

(d) Combinational circuit

(e) Micro-programmed

7. (a) How associative memory differs from any other memory? 5

(b) Explain the hardware organization and working procedure of associative memory with the help of a block diagram. 5+5

[Internal Assessment – 30 marks]