Roll No._____

DOON UNIVERSITY, DEHRADUN
Mid Semester Examination, March-2016
School of Technology

MCA (Integrated) 5 Years Program
SEMESTER-II
Course: STM-512 [Computer Architecture and Organization]

Time Allowed: 2Hours　　　　　　　　　　　　　　　　　*Maximum Marks: 30*

Note: Question paper is divided into three sections A, B & C. Marks distribution is given alongside. Follow the instruction as given in each section.

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SECTION: A

(6*1=6)

Attempt any six of the following. Write your answer in about 50 Words.

Que-1

(i) Differentiate between Computer Organization and Computer Architecture.

(ii) Explain register transfer language.

(iii) Which of the following is responsible for coordinating various operations using timing signals?

(a)	Arithmetic-logic unit
(b)	Control unit
(c)	Memory unit
(d)	Input unit
(e)	Output unit.

(iv) Consider the following RTL statement.

　　　R2<-M[AR],　　　M[AR]<-R3,　　　R5<-M[R5]

Explain the memory operation in each case.

(v) What is the difference between Hardwired and Microprogrammed Control?

(vi) List all special purpose CPU Registers along with their storage capacity for a general purpose computer.

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(vii) The sum of -6 and -13 using 2's complement addition is,

(a)	11100011
(b)	11110011
(c)	11001100
(d)	11101101
(e)	11100001.

(viii) Which one of the following CPU registers holds the address of the instructions (instructions in the program stored in memory) to be executed next?

(a)	MAR (Memory address register)
(b)	MBR (Memory Buffer Register)
(c)	AC (Accumulator)
(d)	IR (Instruction Register)
(e)	PC (Program Counter).

SECTION: B

Attempt any four of the following. Write your answer in about 250 Words.

(4*3=12)

Que-2 Discuss about Flynn's taxonomy of Computer Architectures.

Que-3 What is pipelining?

OR

Draw the circuit for a 8-bit bus system.

Que-4 Convert the following arithmetic expressions from infix to reverse polish notation:-
                A*B+C*D+E*F
Considering A=3, B=7, C=5, =6, E=4 and F=3, Evaluate the Expression using Stack.

Que-5 Draw the logic diagram of 4-bit Adder- Subtracter and explain the function with a truth table.

Que-6 Difference between RISC & CISC.

SECTION: C

Attempt any three of the following. Write your answer in about 750 Words.

(3*4=12)

Que-7 Write the division Algorithms of unsigned integer. Using the same technique perform the division of 7/2.

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OR

Discuss the general register organization of a basic computer system using diagram.

Que-8 Write a program to evaluate the following arithmetic statement
X=(A+B)*(C+D)
(a) Using an Accumulator type computer with One Address Instruction.
(b) Using Stack organized computer with Zero Address instruction.

Que-9 Discuss about different types of Instruction Formats.

Que-10 What is the need of Addressing in Computer System? Explain the different addressing modes with suitable examples.

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