No. of Printed Pages – **3** **CS213**

Roll No. | | | | | | | | | | |

B. TECH.

FOURTH SEMESTER EXAMINATION, 2017-18

COMPUTER ORGANISATION

Time : **3 Hours** Max. Marks : **60**

Note : **(i)** Attempt **ALL** questions.
(ii) Choices are given in each question set.

1. Attempt any **Four** of the following questions: **3 x 4 = 12**

(a) What do you mean by BUS? Explain its interconnection with CPU.

(b) Define digital computer. Draw its block diagram and explain it.

(c) Differentiate between SRAM and DRAM.

(d) How many 128 x 8 RAM chips are needed to provide a memory capacity of 2048 bytes?

(e) Discuss interrupt cycle of basic computer.

(f) What is stack organization? Compare register stack and Memory stack?

2. Attempt any **Four** of the following questions: **3 x 4 = 12**

(a) Multiply the decimal number (-21) and (+9) using. Booth's Multiplication method.

(b) Represent $-(309.1875)_{10}$ in double precision format.

(c) What are microprocessor, microcomputer and microcontroller? Describe in brief.

(d) Discuss various shift micro operations with examples.

(e) What is the process of fetching a word from memory and storing a word into memory?

(f) Represent the following conditional control statement by two register transfer statement with control function.

If (P=1) then ($R_1 \leftarrow R_2$) else if (Q=1) then ($R_1 \leftarrow R_3$).

3. Attempt any **Two** of the following questions. **6 x 2 = 12**

(a) Explain the difference between hardwired control and micro-programmed control. Is it possible to have a hardwired control associated with a control memory

(b) Write a program to evaluate the arithmetic statement.

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

(i) Using accumulator type computer with one address instruction.

(ii) Using a stack organized computer with zero address instruction.

(c) Show the organization of a BUS system for 8 registers with 4 bit each in a schematic diagram showing clearly the connections.

4. Attempt any **Two** of the following questions: **6 x 2 = 12**

(a) A set associative Cache consists of 128 lines divided into 8 lines per set. Main memory contain 64K blocks of 64 words each. Show the format of main memory address.

(b) Write the control sequences for the execution of the following instruction: SUB R_3+, (R_2).

(c) Write short notes on any **Three** of the following:

(i) Virtual memory.

(ii) Organization of 2D and 2½D

(iii) Programmed I/O

(iv) Cache Memory.

(v) Interrupt.

5. Write short notes on any **Two** of the following: **6 x 2 = 12**

(a) What is the difference between isolated I/O and memory mapped I/O? Explain the advantages and disadvantages of each.

(b) What do you mean by addressing mode? Describe various addressing modes with suitable examples.

(c) Discuss priority Interrupt. Give a hardware based method to handle priority interrupt with a diagram.