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TCS–404/TIT–404

B. Tech. (CS/IT) (Fourth Semester)
Mid Semester EXAMINATION, 2017
COMPUTER ORGANIZATION

Time : 1:30 Hours] [*Maximum Marks : 50*

Note : (i) This question paper contains two Sections.

(ii) Both Sections are compulsory.

Section—A

1. State whether the statements are True/False : (1×5=5 Marks)

   (a) A command given to the computer is called instruction.

   (b) The read and write memory of a computer is called ROM.

   (c) 1101 – 1001 = 0100.

   (d) Cache memory is high-speed buffer, which is inserted between the processors and main memory.

   (e) Assembly language is easily understandable.

2. Attempt any *five* parts : (3×5=15 Marks)

   (a) Differentiate between multiprocessors and multicomputers.

(b) What is Bus ? Explain Single Bus and Multiple Bus Structure.

(c) Find (1001101 – 10101001) using 1's complement.

(d) What are 2's complements ? Give its Significance.

(e) What Sign magnitude representation ? Give an example.

(f) Which information is stored by Program Counter (PC) ?

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Describe the various functional units with their operations in a computer with diagram.

(b) What is Instruction Cycle ? Explain it with the help of flow chart.

(c) Multiply (+ 13) and (– 6) using Booth Algorithm.

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What is interrupt ? With example illustrate the concept of interrupt.

(b) Explain, how the performance of a computer can be enhanced using the parameters : processor clock, cache memory, pipelining and superscalar operations ?

(c) Explain, how the following instruction sequence is executed ?

Load Loc A, R1

Add R1, R0

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Explain (i) Logical, (ii) Shift, and (iii) Rotate instructions with examples.

(b) Draw and explain the connection between memory and processor with the respective registers.

(c) Perform the following operations on the 5-bit signed numbers using 2's complement representation system. Also indicate whether overflow has occurred :

(i) (– 10) + (– 13)

(ii) (– 10) – (+ 4)

(iii) (– 3) + (– 8)

(iv) (– 10) – (+ 7)