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(21218) Roll No. .....

BCA-III Sem.

18013

B. C. A. Examination, Dec. 2018

Computer Architecture & Assembly Language

(BCA-303)

(New Course)

Time : Three Hours] *[Maximum Marks : 75*

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required.

3×5=15

1. What are the three major phases through which the control unit go through an instruction cycle ?

2. Write a note on computer registers.

3. What do you understand by interleaved D. M. A.?

4. What is asynchronous data transfer ?

5. Distinguish between fixed point and floating point representation.

Section-B

(Short Answer Questions)

Attempt any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required. 7½×2=15

6. (a) Differentiate between RISC and CISC.
   (b) What is the difference between hardwired control and microprogrammed ?

7. Draw and explain a 4-bit arithmetic circuit which can perform the following :
   (a) Add
   (b) Add with carry
   (c) Subtract with borrow
   (d) Subtract
   (e) Transfer of A
   (f) Increment
   (g) Decrement.

8. Write an assembly language program to add 'n' number where the numbers are stored in 'n' consecutive locations (NUM, NUM+1.....NUM + n-1) and to store the result in memory location SUM. The number 'n' is stored in memory location N.

Section-C

(Detailed Answer Questions)

Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. 15×3=45

9. (a) Perform the subtraction of the following unsigned decimal number by taking 10's complement of the subtrahend :

7452 – 1243

(b) Perform the subtraction of the following unsigned binary number by taking 2's complement of the subtrahend :

11010 – 1101

(c) What is the use of macros in I/C instruction ?

10. Draw a block diagram for data transfer from CPU to an interface and then to an I/O device. Determine the procedure for setting and clearing the flag bit.

11. What is a difference between a direct and indirect address instruction ? How many references to memory are needed for each type of instruction to bring an operand into a processor register ?

12. Draw and explain one stage of an ALU with shift capability along with the microoperations performed.

13. Write short notes on any three of the following :
    (a) Arithmetic pipelining
    (b) Instruction set
    (c) Interrupts useful in improving processing efficiency
    (d) Array processor
    (e) Serial communication.