Roll No. .....

Total No. of Questions : 9] [Total No. of Printed Pages : 4

(1109)

BCA UG (CBCS) RUSA IIIrd Semester Examination

3602

COMPUTER ORGANIZATION

BCA-0303

Time : 3 Hours] **[Maximum Marks : 70**

Note :– Attempt *five* questions in all, selecting *one* question each from Units I, II, III and IV. Q. No. **9** is compulsory.

Unit–I

1. (a) Convert the following :

   (i) $(147)_{10} = (\ )_8$

   (ii) $(3456.A7)_{16} = (\ )_8$

   (iii) $(5674.6)_8 = (\ )_2$

   (b) Perform the arithmetic operations (+42) + (–13) and (–42) – (–13) in binary using signed 2's complement representation for negative numbers. 5,5

2. (a) Explain the use of parity bit in error detection codes. How is it generated ?

   (b) Explain Hamming code with suitable example. 5,5

Unit–II

3. What are Arithmetic Microoperations ? Explain Binary Adder-Subtractor in full detail. 10

4. Write short notes on the following :

   (a) Arithmetic Logic Shift unit.

   (b) 4-bit Adder-Subtractor 5,5

Unit–III

5. What is the difference between a direct and indirect address instructions ? How many references to memory are needed for each type of instruction to bring an operand into a processor register ? 10

6. What do you mean by Instruction Cycle ? Explain some basic computer instruction formats. 10

Unit–IV

7. Write short notes on the following :

   (a) Addressing modes

   (b) Interrupts 5,5

8. Convert the following arithmetic expression from reverse polish notation to infix notation :

   (a) ABCDE+*-/

   (b) ABCDE*/-+

   (c) ABC*/D-EF/+ 10

Compulsory Question

9. (A) Attempt all parts.

Fill in the blanks :

(i) In the case of, zero-address instruction method the operands are stored in ..... .

(ii) The addressing mode, where you directly specify the operand value is ..... .

(iii) The decimal number (567.76) is equal to octal number $(\ldots\ldots)_8$.

(iv) The 2's complement of –68 is ..... .

State whether the statement is True *or* False :

(v) Program Counter (PC) holds the address of next instruction. (True/False)

(vi) A stack is a storage device that stores information in such a manner that the item stored first is the first item retrieved.

(True/False)

Select the correct option :

(vii) In Reverse Polish Notation, expression A*B+C*D is written as :

(a) AB*CD*+ (b) A*BCD*+

(c) AB*CD+* (d) A*B*CD+

(viii) The addressing mode, where you directly specify the operand value is :

(a) Immediate (b) Direct

(c) Definite (d) Relative

(ix) A sequence of control words corresponding to a control sequence is :

(a) Command word

(b) Control word

(c) Coordination word

(d) Generation word

(x) Floating point representation is used to store :

(a) Boolean Values

(b) Whole numbers

(c) Real integers

(d) Integers $1 \times 10 = 10$

(B) Explain the following **25** to **30** words :

(i) Hamming code

(ii) BCD arithmetic

(iii) Three-address instructions

(iv) 10s complement

(v) Full Adder $4 \times 5 = 20$

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