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

(1107)

B.C.A. UG (CBCS) RUSA IIIrd Semester Examination

3843

COMPUTER ORGANIZATION

BCA–303

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

Note :– Attempt *five* questions in all, selecting *one* question from each Unit-I, II, III and IV. Question No. 9 (Unit-V) is compulsory.

Unit–I

1. Perform the following conversions :

   (a) $(AF63)_{16}$, (.....)$_2$, (.....)$_{10}$

   (b) $(41.6875)_{10}$, (.....)$_2$, (.....)$_{16}$

   (c) $(F3A7C2)_{16}$, (.....)$_2$, (.....)$_8$

   (d) $(736.4)_8$, (.....)$_{10}$, (.....)$_2$ 2½×4=10

2. (a) Explain 2's complement notation to represent binary numbers.

   (b) Write a short note on BCD arithmetic.

   (c) Discuss Hamming code for Error detection. 3,3,4

Unit–II

3. What do you mean by Bus and Memory transfer ? Explain the working of Bus System with 4-register and 4- Multiplexer using diagram. 10

4. (a) What do you mean by microoperations ?

   (b) Give the working and diagram of 4-bit Binary adder. 4,6

Unit–III

5. (a) What is a Register ? Explain the working and significance of a register in a basic computer.

   (b) Explain Timing and Control with respect to a basic computer. 6,4

6. (a) What do you mean by Instruction Cycle ? Explain fetch and decode.

   (b) Define Routine and Mapping in address sequencing. 6,4

Unit–IV

7. (a) Give the block diagram of CPU and also explain its working.

   (b) Define Control Word. 7,3

8. (a) Discuss various addressing modes used in a Computer System.

   (b) Explain Program Status Word (PSW). 8,2

Unit–V

(Compulsory Question)

9. Attempt all parts.

Fill in the blanks :

(a) A group of bits that tell the computer to perform a specific operation is known as .....

(b) Hexadecimal number $(2FAOC)_{16}$ is equivalent to decimal number $(.....)_{10}$.

(c) A collection of lines that connects several devices is called ..... .

(d) A binary digit is called a ..... .

State whether the statement is True *or* False :

(e) Arithmetic operations with fixed point numbers take longer time for execution as compared to with floating point numbers. (True/False)

(f) An arithmetic shift left multiplies a signed binary number by 2. (True/False)

Select the correct option :

(g) ..... register keeps tracks of the instructions stored in program stored in memory.

(a) AR (Address Register)

(b) XR (Index Register)

(c) PC (Program Counter)

(d) AC (Accumulator)

(h) The circuit converting binary data into decimal is :

(a) Encoder

(b) Multiplexer

(c) Decoder

(d) Code converter

(i) The circuit used to store one bit of data is known as :

(a) Register

(b) Encoder

(c) Decoder

(d) Flip–Flop

(j) In computers, subtraction is generally carried out by :

(a) 9's complement

(b) 10's complement

(c) 1's complement

(d) 2's complement $1 \times 10 = 10$

Answer the following in **25** to **50** words :

(k) List out different types of interrupts.

(l) Discuss various types of Instruction Formats.

(m) Explain Circular Shift in brief.

(n) Explain Two- Address instruction.

(o) What do you mean by Reverse Polish Notation ? Give examples to explain the concept. $4 \times 5 = 20$