SCA–142

B.C.A. Part-III Due of B.C.A. Part-I (Supplementary) Examination, 2022

COMPUTER ARCHITECTURE

Paper – BCA–106

*Time : **1½ Hours**]*　　　　　　　　*[Maximum Marks : **50***

***Note* :–**　Attempt *five* questions in all, selecting *one* question from each Unit. All questions carry equal marks.

Unit–I

1. (a)　Solve the following number system conversions :

　　(i)　　$(4275)_{10} \rightarrow (?)_2$

　　(ii)　$(2D5)_{16} \rightarrow (?)_{10}$

　　(iii)　$(7489)_{10} \rightarrow (?)_8$

　　(iv)　$(1111001110)_2 \rightarrow (?)_{16}$

　　(v)　$(4723)_8 \rightarrow (?)_{10}$　　　　　　5

　(b)　What is 2's complement ? Give an example of binary subtraction using 2's complement.　　5

2. (a)　Explain De Morgan's theorem used in Boolean Algebra.　　5

　(b)　Explain NAND as universal gate.　　5

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Unit–II

3. (a) Explain Full Adder with diagram.   5

    (b) Explain 4×1 Multiplexer.   5

4. (a) Explain JK flip-flop.   6

    (b) What are the elements of 8085 Microprocessor ?   4

Unit–III

5. Explain the different addressing modes.   10

6. (a) Describe General Register Organization.   4

    (b) Describe Instruction Cycle.   6

Unit–IV

7. (a) Explain I/O Interface.   4

    (b) Describe modes of Data transfer.   6

8. (a) Explain Direct Memory Access.   6

    (b) Describe Input-Output Processor.   4

Unit–V

9. (a) What is Auxiliary Memory ?   3

    (b) Explain Virtual Memory Mapping.   7

10. (a) Describe Cache Memory.   5

    (b) Explain the work of Assembler.   5