Roll No. ....   Total Pages : 4

7329/N

J–25/2110

COMPUTER ORGANIZATION AND

ARCHITECTURE

Paper–113

Semester–I

Time Allowed : 3 Hours]   [Maximum Marks : 70

Note : Attempt **two** questions each from Sections A and B carrying 10½ marks each and the entire Section C consisting of 13 short answer type questions carrying 28 marks.

SECTION—A

1. Explain the following with example :

   (i)   Multiplexer

   (ii)   RS Flip flop

(iii) ASCII.

2. (a) Simplify the expression (BC'+A'D) (AB'+CD') using Boolen algebra.   4½

   (b) Discuss the working and role of Full adder along with the diagram.   6

3. (a) Explain the Basic instruction cycle.   4½

   (b) Simply the following Boolen function in product of sum form by means of four variable map. Draw the logic diagram with AND-OR gate.

   $F(A,B,C,D)=\Sigma(2,3,4,5,6,7,11,14,15)$.   2½

4. (a) Discuss any four Addressing modes.   8

   (b) Explain the role of Encoders in short.   2½

SECTION—B

5. (a) Discuss any three shift Micro operations.   6

   (b) Compare and contrast RISC and CISC architecture.   4½

6. (a) Explain Micro programmed and Hardwired control unit.   3

(b) Discuss the design of Arithmetic and Logic unit in short. 5

(c) What are Semiconductor memories? 2½

7. (a) Explain DMA and its functioning in detail. 7

(b) Compare and contrast Memory initiated and Programmed I/O. 3½

8. (a) Explain various Memory types in detail. 7½

(b) What is I/O interface? 3

SECTION—C

9. (i) Explain BCD and EBCDIC coding. 3

(ii) Convert 45 and 12 into Binary number. 3

(iii) What is the role of D and T flip flop? 3

(iv) Define a 4×1 demultiplexer. 3

(v) Explain Ripple counter in short. 3

(vi) Name various Instruction formats. 3

(vii) Name important components of Control unit. 3

(viii) Explain Virtual memory. 3

(ix) Give 2's compliment of 11010. 2

(x) Explain the role of CPU in short. 2