Roll No……..

MCA (8-9)/D-14 **10412**

COMPUTER ARCHITECTURE &
PARALLEL PROCESSING
Paper-MCA-503

Time Allowed : 3 Hours] [Maximum Marks : 80

Note : Attempt five questions in all, selecting at least one question from each Unit. Question No.1 is compulsory.

Compulsory Question

1. Answer the following questions in brief : 8*3=24

(a) I Explain floating point representation of numbers.
(b) Compare Hardwired and Micro programmed control.
(c) Discuss the evolution of the term Computer architecture.
(d) What is Granularity? Differentiate among Fine grain, ‘Medium grain and Coarse grain.
(e) Explain the role of partial decoding phase in Super scalar processor.
(Q How can you detect a branch as early as possible?
(g) What is Multicomputer architecture?
(h) Distinguish between Static and Dynamic interconnection Networks.

UNIT-I

2. (a) Devise an algorithm in Flowchart form to add] subtract two integers represented in sign-magnitude form. 7
(b) Devise an algorithm in flowchart form to divide two floating point numbers. 7

3. (a) What is Micro programmed control? Explain its structure with the help of its block diagram. 7
(b) Explain horizontal and vertical Microinstruction formats. 7

UNIT—II

4. (a) What is Computational model? Explain the characteristics of von Neumann computational model. 7
(b) Explain Data dependencies among instructions With suitable examples. 7

5. (a) What is VLIW architecture? Explain the architecture of TRACE VLIW computer. 7
(b) Explain Software pipelining technique of Code scheduling. 7

UNIT-III

6. Write short notes on the following :
(a) In-order and Out—of-order issue 7
(b) Register renaming. 7
7. (a) Explain dynamic prediction schemes for Branch handling. 7
(b) What do you mean by Branch penalties? Discuss schemes to reduce them. 7

UNIT—IV

8. (a) Explain the following static interconnection Networks; Star, chordal ring of degree 3, fat tree and 2D mesh. Also compare them. 14

9. (a) Compare the read bandwidth of locked, pended and split transaction buses. 7

   (b) Explain Snoopy cache coherence Protocol. 7