(b) Draw and explain the flow chart of four-segment instruction pipelining. 7

7. (a) Discuss organization of pipelines in a general purpose computer. 7

(b) Compute speedup factor and efficiency of a pipeline and explain their usage with an example. 7

Unit IV

8. (a) Discuss the routing algorithm for omega network. 7

(b) Define Parallel Processing. Enlist various types of parallelism and also compare them. 7

9. (a) Discuss the following reconfigurable connection configuration : 8

(i) Crossbar Switch Connection

(ii) Multistage Interconnection Networks.

(b) Classify Parallel Computers based on Flynn's Taxonomy. 6

Subject Code—51629

B.C.A. EXAMINATION

(Batch 2018 Onwards)

(Third Semester)

COMPUTER ARCHITECTURE–II

BCA-233

Time : 3 Hours *Maximum Marks :* 70

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) What is the largest and smallest positive finite normalized number that can be represented as IEEE 754 single precision floating format ?

(b) When can you say that a number is normalized ?

(c) What are exceptions and interrupts ?

(d) What is instruction set architecture ?

(e) What are the steps required for a pipelinened processor to process the instruction ?

(f) Why is pipelining needed ?

(g) Discuss any *two* parallel processing applications. **7×2=14**

Unit I

2. (a) Distinguish between fixed point and floating point representation of a given number. **6**

(b) Why does IEEE 754 standard use biased exponent representation and place it before significand ? Discuss with an example. **8**

3. (a) Explain addition and subtraction for floating point arithmetic operation with appropriate examples. Discuss overflow and underflow conditions also. **8**

(b) What are the various ways of representing negative numbers ? Explain with example. **6**

Unit II

4. (a) Explain the characteristics of RISC instruction set. In what aspects is it better than CISC ? **7**

(b) What is the difference between an internal interrupt and external interrupt ? Give *five* examples of each. **7**

5. (a) What is an interrupt ? With example illustrate the concepts of interrupts. **7**

(b) With neat sketches, explain the various methods for handling multiple interrupt requests. **7**

Unit III

6. (a) What is look-ahead strategy ? How is it different from look behind strategy ? **7**