

**Q.P. Code :23693**

**[Time: Three Hours]**

**[ Marks:80]**

Please check whether you have got the right question paper.

- N.B:
1. Question.No.1 is compulsory.
  2. Solve any three question out of remaining five question.
  3. Assume suitable data if necessary
  4. Figures to right indicate marks.

|     |                                                                                                                                                        |    |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Q.1 | Solve any four out of five                                                                                                                             | 20 |
|     | a) Write a note on scanner                                                                                                                             |    |
|     | b) Draw and explain the flowchart of Add & shift method of integer multiplication                                                                      |    |
|     | c) Briefly explain Flynn's classification                                                                                                              |    |
|     | d) With the help of diagram, explain Von- Neumann's architecture                                                                                       |    |
|     | e) What are the major functions of I/O module?                                                                                                         |    |
| Q.2 | a) Divide 6 by 2 using restoring division algorithms                                                                                                   | 10 |
|     | b) Discuss various pipeline hazards with example                                                                                                       | 10 |
| Q.3 | a) Multiply (-2) and ( 2) using Booth's Algorithm.                                                                                                     | 10 |
|     | b) Consider the string 9,4,2,3,2,9,5,9,4,2,6,7,5,3,4,2,3,2,4,<br>Find the page faults for 3 frames using FIFO, Optimal & LRU page replacement policies | 10 |
| Q.4 | a) Explain various cache mapping function                                                                                                              | 10 |
|     | b) Draw and explain instruction cycle with interrupt execution                                                                                         | 10 |
| Q.5 | a) Explain the various characteristics of memory                                                                                                       | 10 |
|     | b) Describe the register organization within the CPU                                                                                                   | 10 |
| Q.6 | a) What is bus arbitration? Explain its techniques                                                                                                     | 10 |
|     | b) What is the need of DMA? Explain its various techniques of data transfer                                                                            | 10 |