

(3 Hours)**[Total Marks: 80]**

Note : Q1 is compulsory.

Attempt any THREE out of the remaining questions.

Assume suitable data if necessary.

Q1. Attempt any 4 sub questions

- a) Differentiate between computer architecture and organization. (5 M)
- b) What is instruction pipelining? Explain. (5 M)
- c) Draw the flowchart of unsigned binary restoring division algorithm. (5 M)
- d) What is a micro-program? Give suitable example. (5 M)
- e) Explain computer memory hierarchy. (5 M)

- Q2. a) What is stored program concept? Explain Von-Neumann architecture. (10 M)
 b) Differentiate between hardwired and microprogrammed approach. (10 M)

- Q3 a) Represent the number $(-0.0625)_{10}$ in single and double precision IEEE 754 binary floating point representation formats. (10 M)
 b) What are Pipeline Hazards? Explain different types of Pipeline Hazards. (10 M)

- 4 a) Explain addressing modes with suitable examples. (10 M)
 b) Draw the flowchart of Booths algorithm and multiply $(-7)*(3)$ using Booths algorithm. (10 M)

- Q5. a) Explain Interrupt driven I/O. (10 M)
 b) Explain different cache memory mapping techniques. (10 M)

- Q6 Write notes on (any two) (20 M)
 a) Interleaved and Associative memory.
 b) DMA.
 c) Instruction execution cycle with interrupt processing.