

- N.B. : (1) Question No. 1 is compulsory.  
(2) Attempt any three questions from remaining questions.  
(2) All questions carry equal marks.  
(3) Figures to the right indicate full marks.

Q1.

- What is parallel processing?
- Write short note on nanoprogramming.
- Compare RISC and CISC machines.
- What is effect of multiple data paths in design of processor .

Q2.

- Explain Booth's Algorithm . Solve  $(+7) * (-5)$  using Booth's Algorithm.
- Compare Hardwired control unit and Microprogrammed control unit.

Q3.

- Consider main memory size as three pages . Following page address trace is generated by execution of a program

2	3	2	2	1	5	4	2	3	1	2	4
4	4	2									

Assume main memory is cleared initially. Find page hit ratio by  
1) FIFO 2) LRU 3) LFU replacement policies.

- Explain IA-32 architecture in detail.

Q4.

- Explain Cache memory and describe Cache mapping techniques.
- What is bus arbitration? What are different methods to resolve bus arbitration.

Q5.

- Explain advantages of interrupt driven I/O over polling. Explain interrupt driven I/O access with one example.
- Draw and explain microprogrammed control unit for multiplier.

Q6. Write short note on any four

- Pipeline Hazards.
- Memory Hierarchy
- Restoring Division algorithm.
- 8085 addressing modes
- Arithmetic Instructions in IA-32 architecture.