

1. All questions are compulsory.
2. All questions carry equal marks.
3. Draw neat, labelled diagrams wherever necessary.

1. Attempt the following (Any four)

(20 Marks)

- a. State and explain Demorgan's theorems.
- b. Express the following Boolean expression on the K-map:
$$Y = A'B'C' + A'BC + AB'C + ABC'$$
- c. Construct AND, OR and NOT gates using NOR gate.
- d. Draw and explain Full adder.
- e. What is Multiplexer? Explain 2:1 Multiplexer.
- f. Write a short note on counter.

2. Attempt the following (Any four)

(20 Marks)

- a. Write a short note on memory.
- b. Explain the concept of paging.
- c. Write a short note on cache memory.
- d. Write a short note on memory hierarchy.
- e. List and explain the different levels of RAID.
- f. Explain virtual memory.

3. Attempt the following (Any four)

(20 Marks)

- a. Explain the micro-operations of registers.
- b. Write a short note on superscalar processors.
- c. State the function of control unit.
- d. Describe hardwired control unit & specify its advantages.
- e. Draw and explain multiprocessor architecture.
- f. Write a short note on Flynn's classification of parallel computer.

4. Attempt the following (Any five)

(15 Marks)

- a. Write a short note on ISA standard.
- b. Write a short note on DMA.
- c. Write a short note on magnetic disk.
- d. Write a short note on Secondary memory.
- e. Write a short note on vector processors.
- f. Explain logical micro operations.
