

### SECTION-A

1. (a) How Logical and Shift micro operations are used ? Explain the role of registers. 8  
(b) What is the need of Computer Instructions and Instruction Codes ? Explain. 7
2. What is the role of instruction cycle for designing a basic computer? Explain the different phases of this cycle. 15

### SECTION-B

3. Explain the following concepts :
  - (a) General Register Organization 7.5
  - (b) Relative and Direct Addressing Mode. 7.5
4. Discuss the characteristics of the following Architecture Designs :
  - (a) CISC 7.5
  - (b) RISC. 7.5

### SECTION-C

5. Write notes on the following :
  - (a) Cache Memory 7.5
  - (b) Memory Hierarchy. 7.5

6. (a) What is the advantage of using virtual memory concept ? Explain.  
(b) Discuss the role of associative memory in detail. 7.5, 7.5

#### SECTION-D

7. (a) How I/O processor is employed ? Explain in detail. 8  
(b) Discuss DMA mode for data transfer operations. 7
8. (a) Explain the uses of Vector Processing. 7.5  
(b) How SISD and MISD architectures are employed ? Explain. 7.5