

QP Code : 26667

[Total Marks: 80]

(3 Hours)

N.B: (1) Question No.1 is compulsory.  
(2) Answer any **four** from remaining **six** questions.

1. (a) What is a multiplexer? Draw 8:1 MUX using logic gates along with its truth table. (05)
- (b) Compare sequential circuits and combinational circuits. (05)
- (c) Using K-map simplify the following expression. (05)  
 $F(A,B,C,D) = \sum m(1,3,5,8,9,11,15) + d(2,13)$
- (d) What do you mean by a Counter? Explain types of counters. (05)
2. (a) What is bus arbitration? Explain different bus arbitration methods. (08)
- (b) Explain DMA (Direct Memory Access) method of I/O technique with a suitable diagram. (07)
3. (a) Explain six stage instruction pipeline. Explain how conditional branching affects pipeline performance. (08)
- (b) Explain Register organization of CPU. (07)
4. (a) What is micro-programmed control unit? What are its advantages & disadvantages? (08)
- (b) Explain Flynn's taxonomy of parallel processing systems. (07)
5. (a) Draw & explain block diagram of a Control unit. (08)
- (b) Explain the concept of cloud computing. (07)
6. (a) Explain memory hierarchy with suitable diagram. Also explain the principle & structure of cache memory with suitable example. (08)
- (b) Differentiate between programmed I/O and Interrupt driven I/O. (07)
7. Write Short notes on (any 3) (15)
  - (a) SMP (Symmetric Multi-Processors) organization
  - (b) Clusters
  - (c) Full adder
  - (d) Associative Memory.

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**YQ-Con. 7191-16.**

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