

MCA (SEM-I)
Computer Organization & Architecture
(OCT-16)

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QP CODE : 510202

[Total marks:100]

- Note (1) Q1. is compulsory, attempt any four out of remaining six.
 (2) All question carry equal marks.
 (3) Answer to sub-questions should be grouped together.

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| Q1. | (a) Explain Full Adder with Logic diagram | 5 |
| | (b) Define flip flop. Explain the working of SR FF with logic diagram. | 5 |
| | (c) Simplify the Boolean function $F(a,b,c,d) = \sum(0,1,2,5,8,9,10)$ using four variable map in sum of product form. Also draw the circuit diagram of the simplified equation. | 5 |
| | (d) Design a combinational logic circuit whose output is HIGH for odd number of 1's as input. Assume that input to the circuit is 3-bit A2 A1 A0. | 5 |
| Q2. | (a) List and explain different addressing modes with suitable examples | 10 |
| | (b) Explain system bus. Write different bus arbitration methods. | 10 |
| Q3. | (a) Compare and contrast Interrupt Driven I/O, DMA and Programmed I/O. | 10 |
| | (b) Explain fetch cycle, indirect cycle and interrupt cycle. With the help of a diagram | 10 |
| Q4. | Difference the following | 20 |
| | (a) Micro-Programmed and Hard wired Control | |
| | (b) SRAM vs. DRAM | |
| Q5. | (a) What is RAID? Explain any 3 RAID levels in detail with suitable diagrams | 10 |
| | (b) What is an I/O Module? Discuss with the help of a diagram, the functioning of I/O module. | 10 |
| Q6. | (a) Explain 4x1 multiplexer with the diagram. | 10 |
| | (b) Define Cluster. Explain different clustering methods in detail. | 10 |
| Q7. | Explain any two in details: | 20 |
| | (a) PCI bus | |
| | (b) Cache Memory | |
| | (c) SMP | |