Total No. of Questions : 8]

SEAT No. : [ ]

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[6002]-166
S.E. (I.T.)
LOGIC DESIGN & COMPUTER ORGANIZATION
(2019 Pattern) (Semester - III) (214442)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

Q1) a) Define the following terms. **[8]**

i) Propagation Delay Time

ii) Setup Time

iii) Hold Time

iv) Maximum Clock Frequency

b) Draw and explain SR flip-flop using NAND gate. **[6]**

c) Convert T flip-flop to D flip-flop. **[4]**

OR

Q2) a) Design MOD-45 counter using IC 7490. **[8]**

b) Draw and explain 4-bit serial-in serial-out shift register using D-FFs. **[6]**

c) Differentiate between Latch and Flip Flop. **[4]**

Q3) a) Draw and explain Single bus organization of CPU? State functions of CPU? **[8]**

b) Explain sequence of events that occur in Fetch cycle symbolically with diagram at each stage. **[9]**

OR

P.T.O.

Q4) a) Draw the block diagram of Hardwired control unit. **[8]**

b) Describe the functions of registers: IR, MBR, MAR, PC, Flag register. **[9]**

Q5) a) What are key characteristics of RISC & CISC. Compare RISC and CISC. **[9]**

b) What is mean by Instruction format? Explain 0-1-2-3 address formats with suitable example? **[9]**

OR

Q6) a) Draw and explain Cluster and Cluster Architectures. **[9]**

b) Explain symmetric multiprocessors(SMP) organization with features. **[9]**

Q7) a) What are the different algorithms and techniques used in managing cache memory. **[8]**

b) Explain Interrupt Driven I/O with a diagram. **[9]**

OR

Q8) a) Draw & explain memory hierarchy structure? What is mean by a Principle of Locality. **[9]**

b) Explain the memory write cycle with help of suitable timing diagram. **[8]**