CS

Duration: 2.30 Hours **H19NDSA** **Marks:- 75**

Note:- 1) All questions are compulsory
2) All questions carry equal marks
3) Figures to the right indicate maximum marks.

Q.1 Attempt any four of the following: (any 4) **(20 M)**

1) Explain and mention the universal gates.
2) Explain the NAND gate. Draw its symbol and write its truth table.
3) What are the major functions of an IO module ?.
4) Design 3 bit synchronous counter using SR flip flops.
5) Explain data transfer techniques of DMA.
6) List the various performance measure metrics of computer.

Q.2) Attempt any four of the following: (any 4) **(20 M)**

1) Design a 3bit synchronous counter using JK flip flops.
2) Give different instruction formats.
3) Explain and mention the universal gates.
4) Explain memory hierarchy.
5) With the help of circuit diagram explain the full adder.
6) Explain JK flip flop.

Q.3) Attempt any four of the following: (any 4) **(20 M)**

1) Explain with example two way set associative mapping technique.
2) Write short note on : RISC & CISC processors.
3) Explain different allocation policies.
4) Differentiate between SRAM & DRAM.
5) Write short note on Interrupt driven IO.
6) Explain IO addressing & its modes.

Q.4) Attempt any three of the following **(15 M)**

1) Minimize the following expression using the K-map.
$Y=\sum m(1,5,6,7,11,12,13,15)$
2) Write short note on polling
3) Explain multiple –Bus hierarchies
4) Simplify the function using K-mad draw simplified circuit diagram
$F(A,B,C,D)=(A+B+C+\bar{D})\ (A+B+\bar{C}+\bar{D})\ (\bar{A}+\bar{B}+\bar{C}+\bar{D})\ (\bar{A}+\bar{B}+C+D)$
5) Write comparison between computer architecture and computer organization
6) Simplify the expression given below using K-map & draw simplified circuit
$Y=.\sum m(1,3,7,11,15)+d(0,2,5)$

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