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Total No. of Pages : 02

Total No. of Questions : 09

B.Voc.(Hardware & Networking) (Sem.–4) COMPUTER SYSTEM ARCHITECTURE Subject Code : BVHN-404-18 M.Code : 77483 Date of Examination : 13-07-22

Time: 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly:

- a) Define race condition in JK flip flop.
- b) Discuss the purpose of using register despite of memory.
- c) What is Encoder?
- d) Realize OR gate using only NAND gates.
- e) Give the logic diagram and characteristics table of a clocked D flip flop.
- f) What is addressing? What are direct and indirect/addressing?
- g) What are various types of buses in computer system?
- h) Draw circuit of full adder with truth table.
- i) What is the use of K maps?
- j) Simplify the Boolean function:

F = x'yz + x'yz' + xy'z' + xy'z

SECTION-B

2. Solve the following Boolean functions by using K-Map.

 $F = (w,x,y,z) = \Sigma (0,1,4,5,6,8,9,10,12,13,14).$

- 3. Explain half adder and full adder in detail.
- 4. Explain the working of Master Slave JK Flip Flop.
- 5. Compare RISC and CISC architecture.
- 6. Implement the given function using decorder logic
 - a) $F1 = \Sigma m(0,5,7)$
 - b) $F2 = \Sigma m(1,2,3,4)$
 - c) $F3 = \Sigma m(1,6,7)$.

SECTION-C

- 7. Design a 32to 1 Multiplexer using 4 to 1 Multiplexer and explain its working.
- 8. A computer uses a memory unit with 256K words of 32 bits each. A binary instruction code is stored ill one word of memory. The instruction has four parts: an indirect bit, an operation Code part, a register code part to specify one of 64 registers, and an address part.
 - a) How many bits are there in operation code, the register code part and an address part?
 - b) Draw the instruction word format and indicate the number of bits in each part.
 - c) How many bits are there in the data and address inputs of memory?
- 9. Discuss various types of Logic Gates. Also, discuss their applications.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.