SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR 44

ROLL No: | | | | | | | | | | | | |

Total number of pages:[2]

Total number of questions: 06

B.C.A. 1st Sem
Digital Electronics
Subject Code: BCAP1-103
Paper ID:

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**

PART A (2×10)

Q. 1. Short-Answer Questions: All COs

(a) Convert Decimal Number 25 to Binary Number.
(b)Perform the following: $(1010)_2+(1111)_2$.
(c)Draw the circuit of NAND and NOR gates.
(d)Give Associative Law.
(e)Which gates are called Universal gates and why?
(f) What are flip flops?
(g)Write 1's and 2's complement of (10101110).
(h)What are combinational circuits?
(i)Give truth table of T flip flop.
(j)What will be the Binary representation of the number $(1999)_{10}$?

PART B (8×5)

Q. 2. Convert the following numbers: CO1

a) $(3A.2F)_{16}=(\ )_{10}$
b) $(125)_8=(\ )_{10}$
c) $(34)_{16}=(\ )_2$
d) $(12.25)_{10}=(\ )_2$

OR

What are Logic gates? Explain its types with diagram. CO1

Q. 3. Explain Universal Properties of NAND and NOR Gates. CO2

OR

Find the minimum sum of products expression for the function: CO2
$f(a,b,c,d)=\sum m(1,3,4,6,7,9,11,12,13,15)$

Q. 4. Explain working of Master Slave JK Flip Flop. CO3

OR

Define Multiplexer. Explain 4x1 multiplexer in detail. CO3

Q. 5. What is RAM chip? Explain its types and working. CO4

OR

Differentiate between PROM and EPROM. CO4

Q. 6. Explain Half Adder and Full Subtractor with example. CO3

OR

Apply De-Morgan's Theorem to the following expressions: CO2 4½

a) $\overline{\overline{A} + \overline{BC}}$

b) $\overline{\overline{A} + \overline{BC} + \overline{A\overline{B}}}$