TDC Odd Semester Exam., 2020
held in July, 2021

COMPUTER APPLICATION

(Honours)

(1st Semester)

Course No. : BCAC–101

(Digital Logic)

Full Marks : 35
Pass Marks : 12

Time : 2 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. *(a)* Write short notes on TTL and ECL. 4

(b) Explain the characteristics of digital ICs. 3

2. What is multivariator? Briefly explain the different types of multivariator. 7

UNIT—II

3. *(a)* Express the following Boolean function in sum of minterms : 4

$f(x, y, z)$ x $y'z$

(b) Simplify the following : 3

$F(A, B, C)$ $(2, 3, 6, 7)$

4. *(a)* Draw Karnaugh map and simplify the following Boolean expressions : 4

(i) AB $A\overline{B}$ $\overline{A}\,\overline{B}$

(ii) ABC $\overline{A}\,B\,\overline{C}$ $AB\overline{C}$ $\overline{A}BC$

(b) Convert $(10010110)_2$ to decimal, octal and hexadecimal numbers. 3

UNIT—III

5. *(a)* Design a 2 to 4 line decoder with enable input. 4

(b) Draw the logic diagram and function table of a 4 to 1 line multiplexer. 3

6. Design a 4-bit binary adder-subtractor with explanation of full adder. 7

UNIT—IV

7. *(a)* What is sequential circuit? How does it differ from combinational circuit? 2

(b) Explain *D* flip-flop and *T* flip-flop. 5

8. *(a)* Explain *R-S* flip-flop. 4

(b) Obtain the excitation table of *J-K* flip-flop. 3

UNIT—V

9. Explain the working principle of a binary ripple counter. 7

10. Write short notes on the following : 3½+3½=7

(a) Synchronous counter

(b) Random Access Memory

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