Register Number: 20322213026

C-6452

Name of the Candidate:

B.C.A. DEGREE EXAMINATION, DECEMBER 2022

(FOR AFFILIATED COLLEGES)

(NEW REGULATION 2022 ONWARDS)

COMPUTER APPLICATION

FIRST YEAR – I SEMESTER

22UBCAC14 DIGITAL COMPUTER FUNDAMENTALS

Time : 3 Hours **Maximum : 75 Marks**

PART – A **10 x 2 = 20**

Answer All Questions

1. List out various number systems.
2. Write the steps involved in conversion of binary-to-gray code conversion.
3. Visualize four variable K-map.
4. Show the truth table of NAND gate.
5. Draw the logic circuit for X = AB + CDE.
6. Discuss the need of encoders.
7. State the significance of Hold time.
8. Show the logic circuit of clocked R-S Flip-Flop.
9. State the different types of modules available in SDRAM.
10. What do you mean by Worm?

PART - B **5 x 5 = 25**

Answer All Questions

11. a) What is the equivalent octal and binary numbers for the given decimal number 498.25?

[OR]

b) Discuss 1's complement subtraction with example.

12. a) Enumerate any Five laws of Boolean Algebra.

[OR]

b) Write the following expression in simplified form using K-Map:
$Y = \Sigma_m (3,4,5,7,9,13,14,15)$

13. a) Identify the significance of 8 – to -1 multiplexers.

[OR]

b) Construct BCD – to – Decimal decoder circuit and explain it.

14. a) Write a note on RS Flip-Flop.

[OR]

b) Write a note on bidirectional shift registers.

15. a) Write a note on Internal ROM organization.

[OR]

b) Discuss about FIFO memories.

PART - C **3 x 10 = 30**

(Answer Any Three Questions)

16. Express the following:
    (a) $10111.1011_2 = ?_{10}$
    (b) $1024_8 = ?_2$
    (c) $AB2_{16} = ?_8$
    (d) $4163_8 = ?_{16}$
17. Represent DeMorgan's Law using logic gates.
18. Utilize the exclusive OR gate to build the parity generators and checkers.
19. Explain in detail about JK Flip-Flop.
20. Bring out the significance of magnetic and optical storage mechanisms.
