

(6 pages)

Reg. No. :

Code No. : 10469 E

Sub. Code : CSCS 31

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023.

Third Semester

Computer Science – Skill Based Subject

DIGITAL DESIGN

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. Convert hexadecimal value 16 to decimal

(a) 22

(b) 16

(c) 10

(d) 20

2. The NOR gate output will be high if the two inputs are _____

(a) 00

(b) 01

(c) 10

(d) 11

3. An _____ is a group of eight adjacent is
(a) Pair (b) Quad
(c) Octet (d) None
4. _____ is a way of representing a Boolean expression using min terms or product terms.
(a) POS (b) OPS
(c) EPS (d) SOP
5. The combinational circuits that modify the binary data into N output lines are known as _____
(a) Decoder (b) Encoder
(c) Both (a) and (b) (d) None
6. 1's complement of 100100 _____
(a) 100100 (b) 000000
(c) 111111 (d) 011011
7. A flip flop is a device which stores a _____ of data.
(a) a single word (b) a single byte
(c) a single bit (d) none
8. In S-R flip flop, if $Q = 0$ the output is said to be _____
(a) Set (b) Reset
(c) Previous state (d) Current state

9. A _____ is using a cascade of flip flops where the output of the one flip flop is connected to the input of the next. They share a single clock signal, which causes the data stored in the system to shift from one location to the next.

(a) Counter (b) Shift register

(c) Both (a) and (b) (d) None

10. PIPO stands for _____

(a) Product in product out

(b) Pipe in pipe out

(c) Parallel in parallel out

(d) None

PART B — (5 × 5 = 25 marks)

Answer ALL questions by choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) What do you mean by Gray code?

Or

(b) Convert the decimal numbers 36 and 140 into its binary numbers.

12. (a) Expand and give a brief note on sop.

Or

(b) Express the usage of Don't care conditions in K-Map.

13. (a) Define and give a brief note on Encoder.

Or

(b) Write short note on compliments.

14. (a) What is RS Flip Flop?

Or

(b) Draw the logic diagram and write down characteristic table for Edge triggered JK Flip Flop.

15. (a) Describe about Universal shift register.

Or

(b) What is serial In and parallel out shift register?

PART C — (5 × 8 = 40 marks)

Answer ALL questions by choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) What are the different types of Number system available? Explain each one of them.

Or

- (b) Write short note on the following
(i) ASCII code (ii) Excess – 3 code

17. (a) Simplify the Boolean Expression:

$F(a,b,c,d) = \Sigma(0,1,4,5,8,9,10,12,13,14)$ using 4 variable K-Map.

Or

- (b) Describe the basic theorems of Boolean Algebra.

18. (a) Write short note on the following:

(i) Unsigned Binary Numbers.

(ii) Sign Magnitude Form.

Or

- (b) What is Decoder? Give a brief note on seven segment decoder.

19. (a) With neat Logic diagram and characteristic table explain JK Master Slave Flip Flop.

Or

- (b) What do you mean by Edge Triggered D Flip Flop?

20. (a) Discuss in detail about parallel In and serial out shift Register.

Or

- (b) With neat diagram, explain serial In and serial out shift register.