QP CODE: 23104747

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Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR/IMPROVEMENT/REAPPEARANCE EXAMINATIONS, FEBRUARY 2023

First Semester

B.Sc Information Technology Model III

Core Course - IT1CRT01 - DIGITAL ELECTRONICS

2017 Admission Onwards

D4710B07

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. Define Hexadecimal number system.
2. Convert the hexadecimal number to decimal: a)E5 b) B2F
3. Convert octal to decimal:125
4. Define an inverter with necessary figures and truth table.
5. Define NOT gate with logic symbol and truth table.
6. Simplify the boolean expression A + 0 = A with illustration of logic gates.
7. What is don’t care conditions?
8. Define cell adjacency. Also what is the feature of "wrap-arround"?
9. Define the combinational logic.
10. Define counting function with basic operation diagram.
11. What is the purpose of feedback in an SR latch?
12. Define a clock signal.

(10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Briefly describe about the compliment of binary numbers.

14. Write short notes on 8421 code with necessary examples

15. Illustrate the working of OR gate and the truth table with the waveform inputs.

16. Prove the following using boolean rules. (a) XY' + XY = X (b) X+ X'Y= X+Y

17. Convert boolean expressions into standard SOP form a) WX'Y + X'YZ' + WXY' b) AB'C + A'B' + ABC'D' c) AB + B(CD+EF) d) (A+B) (B+C+D)

18. Describe briefly the basic binary decoder.

19. Illustrate the simplified data transmission system figure with error detection.

20. What is an edge triggered RS flip flop.

21. Describe about the three status of edge triggered SR flip flop.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. a) Describe the functional differences between a NOR gate and a negative AND gate. Do they have the same truth table? B) Write the four possible logic level circuits for an exclusive NOR gate.

23. Explain in detail about the various Boolean expressions and its conversions.

24. Explain with necessary figure and truth table about a four bit parallel adder.

25. Explain the working of synchronous counter operations in detail.

(2×15=30)