Hall Ticket Number :

Code: 4G132

II B.Tech. I Semester Supplementary Examinations October 2020

Digital Logic Design

(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a)   Convert the given Binary number 11011101 into
    i. BCD
    ii. Hexa-decimal
    iii. Decimal

    b)   Convert the hexadecimal number 68BE to binary

OR

2. a)   Express the following function as a sum of minterms and as a product of maxterms:
    F(A,B,C,D)=B'D+A'D+BD

    b)   Implement the Boolean function F=xy+x'y'+y'z
    i) With OR and inverter gates   ii) With AND and inverter gates

UNIT–II

3. a)   Explain about Exclusive-OR function with an example.

    b)   Explain in detail about Don't care conditions with an example.

OR

4.   Explain about the Four-variable map method and simplify the Boolean function
F(w,x,y,z)= (0,2,4,5,6,7,8,10,13,15)

UNIT–III

5. a)   Write down the Analysis procedure of a Combinational circuit.

    b)   Explain about Binary Adder with a neat sketch.

OR

6. a)   Explain about Binary Multiplier with a neat sketch.

    b)   What is a Multiplexer? Explain how a Boolean function is implemented using Multiplexers.

UNIT–IV

7. a)   What is flip – flop and Explain about flip- flops?

    b)   Explain about shift registers?

OR

8. a)   Implement JK Flip-Flop with NAND Gate

    b)   Compare combinational circuit and sequential circuit

UNIT–V

9.   Explain
    (i) Circuits with latches   (ii) Hazards

OR

10.   Implement the following Boolean function in PAL and PLA
F(A,B,C)= (0,1,2,4)

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Code: 4G236

II B.Tech. I Semester Supplementary Examinations October 2020

Electrical Engineering and Electronics Engineering

(Common to ME, CSE & IT)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) Define the terms

   i) Electric Current ii) Potential Difference iii) Electric Power iv) Energy

   b) Three capacitors of 2 mF, 5 mF and 10 mF are connected in series. Find the equivalent capacitance.

OR

2. a) Define the Ohm's Law and its applications.

   b) State and explain Kirchoff's laws using neat diagrams.

UNIT–II

3. a) Explain the operation of principle of DC generator.

   b) Derive the expression for Torque in a DC Motor.

OR

4. a) Derive the emf equation of DC generator.

   b) A 4-pole, lap wound, DC generator has a useful flux of 0.07Wb per pole, armature consists of 440 numbers of conductors. Calculate the generated emf when it is rotated at a speed of 900 rpm with the help of prime mover.

UNIT–III

5. a) Explain the principle of operation of single phase Transformer with neat sketch.

   b) Explain Torque-Slip Characteristics of a Three phase induction motor.

OR

6. a) Derive the expression for E.M.F equation of a transformer.

   b) Explain the principle operation of a three phase induction motor with relevant diagrams

UNIT–IV

7. Explain the operation of Half wave rectifier with relevant diagrams.

OR

8. a) Explain the operation of P-N junction diode mentioning its applications.

   b) Explain the input and output characteristics of transistor in CE configuration.

UNIT–V

9. Describe how phase and frequency are measured by using Lissajous figures.

OR

10. a) Describe how voltage, current and time period are measured by using CRO.

    b) List the applications of CRO.

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