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R-14

Code: 4G236

II B.Tech. I Semester Supplementary Examinations November 2016

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)

UNIT-I

1. a) How the Network elements can be classified. Explain it clearly. 7M
- b) In the network shown in figure 1b, find all branch currents and voltage drops across all resistors.

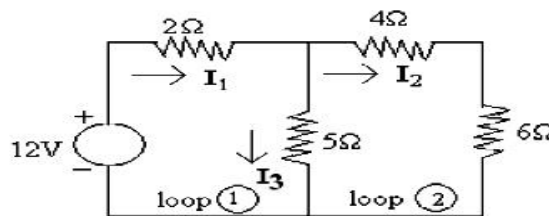


Figure 1b

7M

OR

2. a) Define ohms law and its limitations 4M
- b) A current of 10 A flows through a resistor for 10 min. and the power dissipated by the resistor is 100 W. Find the p.d. across the resistor and the energy supplied to the circuit 5M
- c) Four resistors of 2 ohm, 3 ohm, 4 ohm & 5 ohm respectively, are connected in parallel. What potential difference must be applied to the group in order that total power of 100 W may be absorbed? 5M

UNIT-II

3. a) Explain the principle of operation of generator 8M
 - b) A 240V,dc shunt motor takes 32 A of line current of the armature and field resistances are 1.2 and 240 respectively of the load torque remains constant, find the resistance inserted in series with the armature to have the speed. 6M
- OR**
4. a) Explain the concept of self- excitation of dc generator and list out the types of generator 7M
 - b) A 220V, DC shunt motor taker a total current of 100 A and runs at 750 rpm. The resistance of the armature winding and shunt field winding are 0.1 and 40 respectively. Find the torque developed by armature. 7M

UNIT-III

5. a) What is regulation? Derive an expression for the approximate voltage regulation 7M
b) 3-phase, 6 pole, 50 Hz induction motor has a slip of 1% at no-load and 3% at full load. Determine (i) Synchronous speed (ii) No-load speed (iii) Full load speed (iv) frequency of motor current at full load 7M

OR

6. a) Explain the principle of operation of an alternator with neat diagram 7M
b) A single phase transformer working at unity power factor has an efficiency of 90% at half load and full load of 500 W. Determine the efficiency at 75% of full load 7M

UNIT-IV

7. a) Explain V-I characteristics of P-N junction diode. 7M
b) Write short note on single stage CE amplifier 7M

OR

8. a) Explain the working of P-N-P transistor and mention its input-output characteristics. 7M
b) Explain the operation of half wave and full wave rectifiers with neat circuit diagrams 7M

UNIT-V

9. Derive the expression for electro static deflection of CRO 14M

OR

10. Explain the operation of CRO with a neat sketch. CRO is used to measure frequency and amplitude of a signal. Explain how 14M

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Code: 4G132

II B.Tech. I Semester Supplementary Examinations November 2016

Digital Logic Design

(Common to CSE & IT)

Max. Marks: 70

Time: 3 Hours

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

UNIT-I

1. a) Convert the given Binary number 11011101 into
- BCD
 - Hexa-decimal
 - Decimal
- 6M
- b) What is a 2's complement? Explain it with an example? 4M
- c) Explain How to subtract the given two binary numbers using 2's complement with an example. 4M

OR

2. a) Simplified the following Boolean function. To a minimum no of literals.
- $x + x'y$
 - $x(x'+y)$
 - $xy + x'z + yz$
- 9M
- b) Explain about Sum of Min-terms and Product of Max-terms with suitable examples. 5M

UNIT-II

3. a) Simplify the Boolean function
 $F(A,B,C,D) = (0,2,5,8,9,13,15)$ and DO-CARE condition
 $D(A,B,C,D) = (1,7,14)$ 9M
- b) Implement the above simplified function using NAND and NOR. 5M

OR

4. a) Explain don't-care condition. 4M
- b) Implement AND, OR, and NOT gates using Universal Gates. 6M
- c) Describe EX-OR function with an example. 4M

UNIT-III

5. a) What is a Multiplexer? Explain it. 5M
- b) Construct 16x1 Multiplexer using 4x1 Multiplexers. 9M

OR

6. a) What is a combinational Circuit? Explain it. 7M
- b) Implement Full adder Combinational Circuit. 7M

UNIT-IV

7. a) What is a Sequential Circuit? 4M
- b) Differentiate Latches and Flip-Flops. 4M
- c) Describe JK Flip-Flops. 6M

OR

8. Implement 4-bit synchronous counter with a neat diagram. 14M

UNIT-V

9. Write short notes on
- ROM
 - Programmable Logic Array
- 14M

OR

10. Explain the following
- RAM
 - Error Detection and correction
- 14M

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R-14

Code: 4G131

II B.Tech. I Semester Supplementary Examinations November 2016

Advanced Data Structures Through C++

(Common to CSE & IT)

Max. Marks: 70

Time: 3 Hours

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

UNIT-I

1. a) What is a Function? Discuss about various parameter passing methods in C++. 10M
b) Write short notes on Friend Function. 4M

OR

2. a) Explain in detail about Exception Handling Mechanism with an example. 9M
b) Discuss about Dynamic Memory Allocation and De allocation 5M

UNIT-II

3. a) Differentiate between Constructor Overloading and Function Overloading 8M
b) Discuss in detail about Polymorphism 6M

OR

4. a) What is inheritance? Explain the different types of inheritance with examples. 10M
b) Write an algorithm for Bubble sort. 4M

UNIT-III

5. a) What is a Stack ADT? Write the ADT implementation of Stacks in C++. 7M
b) What is a Queue ADT? Explain the various Operations of Queue with an example. 7M

OR

6. a) Explain the various operations of Dictionaries with an example. 10M
b) Compare and contrast between Chaining and Open Addressing. 4M

UNIT-IV

7. a) What is a Binary Tree? Explain in detail about Binary Trees Traversals with an example. 6M
b) Construct Max heap and Min Heap for the following data. 8M
20,15,95,60,35,43,12,75,34,59

OR

8. a) Explain in detail about Binary Search Trees and its operations. 7M
b) What is an AVL tree? Discuss the various rotations of AVL Trees. 7M

UNIT-V

9. a) Discuss about Splay Trees with an example 8M
b) What is a B-Tree? Explain the various operations of B-Trees. 6M

OR

10. Explain in detail about any two Fixed pattern Matching Algorithms 14M
