Hall Ticket Number :										

R-14

Code: 4G132

II B.Tech. I Semester Supplementary Examinations May 2017

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)

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UNIT–I

1. a) Explain the following
   - i) BCD 2M
   - ii) Excess-3-code 2M
   - iii) Gray code 2M
   - iv) Binary code 2M

   b) Perform the subtraction with the following binary numbers using 2's complement.
   - i) 11010 – 11011
   - ii) 1010 – 10000
   - iii) 10010 - 10011 6M

OR

2. a) What is Canonical form? Explain different Canonical forms with an example. 7M

   b) Draw the logic diagram for the given Boolean expression

   F = AB'+C'D+ABC 7M

UNIT–II

3. a) Simplify the following Boolean function using k-Map.

   F(xyz) = Σ(0,2,4,7,10,12,15) 6M

   b) Obtain the Simplified expression in sum of products the following Boolean function.
   - i) xy + x'y'z' + x'yz' 2M
   - ii) a'b + bc' + b'c' 2M
   - iii) a'b' + bc + a'bc' 2M
   - iv) xy'z + xyz' + x'yz + xyz 2M

OR

4. Obtained the Simplified Expression In sum of products for the following
   - i) F(x,y,z) = Σ (2,3,6,7)
   - ii) F(w,x,y,z) = Σ (2,3,12,13,14,15)
   - iii) F(A,B,C,D)=Σ(4,6,7,15) 14M

UNIT–III

5. a) Design half adder combinational circuit. 7M

   b) Implement the Boolean function

   F=AB'CD' + A'BCD' + AB'C'D + A'BC'D with Exclusive-OR and AND gates 7M

OR

6 Explain the following with an example.
   - i) Decoders
   - ii) Multiplexers 14M

UNIT–IV

7. a) Implement a 3-bit binary Counter. 7M

   b) Design a 4-bit shift register. 7M

OR

8. a) Implement JK Flip-Flop with NAND Gate 7M

   b) Compare combinational circuit and sequential circuit 7M

UNIT–V

9. a) By considering an example explain the working of programmable array logic circuit 7M

   b) Differentiate static and Dynamic RAM. 7M

OR

10. a) Write a brief notes on memory decoding. 7M

    b) Explain the functioning of any two sequential programmable devices. 7M

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Hall Ticket Number :										

Code: 4G236

R-14

II B.Tech. I Semester Supplementary Examinations May 2017

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) Derive the relation between phase and line values of 3 phase balanced star connected system. 7M

   b) A current of 10 A flows in a circuit with a 30 degree angle of lag when the applied voltage is 100 V. Find the impedance, reactance and resistance of the circuit. 7M

OR

2. a) State and explain Kirchoff's laws with the help of neat diagram 7M

   b) Two resistances of 1.5 Ω and 3.5 Ω are connected in parallel and their combination is connected is series with a resistance of 1.95 Ω. Find the equivalent resistance of the circuit. What current will it draw if connected to a 30V supply? 7M

UNIT–II

3. The resistance of the field circuit of a shunt wound dc generator is 200 ohms. When the output of the generator is 100 kW, the terminal voltage is 500 V and the generated emf is 525 V. Calculate: (a) the armature resistance, and (b) the value of the generated emf when the output is 60 kW, with a terminal voltage of 520 V. 14M

OR

4. a) A 240V,dc shunt motor takes 32 A of line current of the armature and field resistances are 1.2Ω and 240Ω respectively of the load torque remains constant, find the resistance inserted in series with the armature to have the speed. 7M

   b) Explain Swinburne's test for the determination of efficiency of a dc machine 7M

UNIT–III

5. a) Explain the principle of operation of 3 phase induction motor 7M

   b) Discuss the synchronous impedance method of calculating voltage regulation of an alternator 7M

OR

6. a) List out different types of losses present in transformer 6M

   b) A 1- transformer has 500 primary and 100 secondary terms. The net cross-sectional area of the core is 50 cm^2. if the primary winding is connected to a 50 H_2 supply at 400V. Calculate (i) Peak value of the flux density in the core (ii) The voltage induced in the secondary winding. 8M

UNIT–IV

7. Explain the working of P-N-P transistor and mention its input-output characteristics 14M

OR

8. a) Explain in detail about frequency response of CE amplifier. 7M

   b) With a neat circuit explain the operation of half wave rectifier circuit 7M

UNIT–V

9. a) Derive the expression for the electrostatic deflection of CRO 7M

   b) Explain the principle of dielectric heating 7M

OR

10. Explain the concept of induction heating and also discuss about various industrial applications of induction heating 14M

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Hall Ticket Number :										

R-14

Code: 4GC34

II B.Tech. I Semester Supplementary Examinations May 2017

Environmental Science

(Common to ECE & 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) Mention few institutions involved and role played by them in protecting the environment. 7M
   b) What are the reasons for the decline of ecosystem globally? 7M

OR

2. a) Outline the role of an individual in the prevention of pollution 7M
   b) Write on the need for public awareness of environment and its importance. 7M

UNIT–II

3. a) What is over grazing? Write a note on the impact of over grazing. 7M
   b) How soil erosion occurs. Mention few remedial measures to prevent soil erosion. 7M

OR

4. a) Enumerate few conflicts over water that you have known. 7M
   b) Write a note on alternate energy resources and their usage. 7M

UNIT–III

5. a) What are the characteristic features of aquatic ecosystem? 7M
   b) Summarize the threats to biodiversity. 7M

OR

6. a) Write on cycling of nutrients and energy in Nitrogen system. 7M
   b) Describe the values of biodiversity. 7M

UNIT–IV

7. a) Explain the effects caused by water pollution and how it will be controlled. 7M
   b) Write short notes on (i) Thermal pollution and (ii) Marine pollution 7M

OR

8. a) What are nuclear hazards? Mention few nuclear hazards occurred in recent years. 7M
   b) Describe the best practices of solid waste management. 7M

UNIT–V

9. a) How acid rains occurs. Explain. 7M
   b) Enumerate the human rights with respect to environment protection. 7M

OR

10. a) What is Air pollution Act? Mention the postulates of Air pollution Act? 7M
    b) Write notes on the impact of environment on human health. 7M

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SUBSTITUTE SUBJECT

Hall Ticket Number :										

R-14

Code: 4G133

III B.Tech. I Semester Supplementary Examinations May 2017

Principles of Programming Languages

(Common to 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) Outline the compilation process in programming languages. 7M
   b) Identify any two examples of syntactic design choices that affect readability? 7M

OR

2. a) Define left recursive grammar rules. 6M
   b) Mention the differences between denotational and axiomatic semantics. 8M

UNIT–II

3. a) Mention the advantages and disadvantages of static and dynamic scoping. 7M
   b) Explain the design issues of character string types. 7M

OR

4. a) With the help of an example, illustrate how short circuit evaluation is done. 7M
   b) Explain operator precedence and operator associativity. 7M

UNIT–III

5. a) Explain the design issues of multiple selection statements. 7M
   b) How is break statement implemented in C, C++ and Java? 7M

OR

6. Illustrate subprogram implementation with stack dynamic local variables. 14M

UNIT–IV

7. a) How is exception handling implemented in Ada? 7M
   b) Illustrate the implementation of message passing. 7M

OR

8. a) How does monitors differ from semaphores? 7M
   b) Explain parameterized Abstract data Types. 7M

UNIT–V

9. a) Explain the different data types used in LISP. 7M
   b) Mention the differences between a depth first and a breadth first search when discussing how multiple goals are satisfied. 7M

OR

10 Write a short notes on
   a) Logic Programming languages 7M
   b) Functional Programming languages 7M

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