Hall Ticket Number :

Code: 4GC34 **R-14**

II B. Tech. I-Semester Regular Examinations Nov/Dec 2015

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 = 70Marks)

****

UNIT-I

1. a) Write a note on need for public awareness of environment and its importance 7M
   b) Explain the main causes for environmental pollution and mention few preventive measures 7M

OR

2. a) Explain the problems associated with natural resources due to over exploitation 7M
   b) Discuss the role of people in protecting the environment with respect to loss of biodiversity 7M

UNIT-II

3. a) What are the effects of deforestation and write a note on remedial measures to be taken. 7M
   b) Discuss the pros and cons of traditional agriculture and modern agriculture 7M

OR

4. a) Write a note on renewable and non renewable energy resources 7M
   b) What is the role of an individual in conserving natural resources 7M

UNIT-III

5. a) Differentiate producers, consumers and decomposers 7M
   b) What are ecological pyramids? Explain? 7M

OR

6. a) Write a detailed note on biodiversity in India 7M
   b) Give a brief account on values of biodiversity 7M

UNIT-IV

7. a) Define pollution. Write a note on different types of pollutions 7M
   b) What is the main cause of global warming and what are the measures to be taken 7M

OR

8. a) What are the causes for the solid waste production and how it effects the environment? 7M
   b) How sold waste is managed in urban area. 7M

UNIT-V

9. a) Write a note on different methods of rain water harvesting 7M
   b) write short notes on acid rains and ozone layer depletion 7M

OR

10. a) Explain in detail about the water act (prevention and pollution) 7M
    b) What is population explosion, write few reasons for it. 7M

***

Hall Ticket Number :										

R-14

Code: 4G236

II B. Tech. I-Semester Regular Examinations Nov/Dec 2015

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 = 70Marks)

****

UNIT-I

1. a) State and explain Kirchoff's laws. 6M
   b) A resistance of R ohms is connected in series with a parallel circuit of two resistors of 12 ohms and 24 ohms. The total power dissipated in the circuit is 80 Watts when the applied voltage was 30 V, find the value of R. 8M

OR

2. a) Obtain the equivalent inductance of three parallel connected inductors of value 10 mH. 7M
   b) A circuit consists of two resistors 20 ohm and 30 ohm connected in parallel. They are connected in series with a resistor of 15 ohm. If the current through the 15 ohm resistor is 3 A, find the current in the other resistors and supply voltage 7M

UNIT-II

3. a) A 4 pole d.c generator is running at 1500 rpm, flux is 7 mwb, number of slots is 52, conductors per slot is 20. Calculate the generated voltage. 7M
   b) Derive torque equation of a dc motor. 7M

OR

4. a) Explain the speed control methods used for dc motors. 7M
   b) Write about Swinburne's test on dc machine. 7M

UNIT-III

5. a) Derive the emf equation of single phase transformer and draw its phasor diagram. 7M
   b) Write about various losses in transformer. 7M

OR

6. a) What is voltage regulation? Explain about synchronous impedance method of finding regulation. 7M
   b) Explain torque slip characteristics of a three phase induction motor. 7M

UNIT-IV

7. a) Explain the operation of bridge rectifier with relevant diagrams. 8M
   b) Write the necessary conditions for oscillators. 6M

OR

8. a) Explain the operation of a transistor as an amplifier. 7M
   b) Explain about frequency response of a CE amplifier. 7M

UNIT-V

9. a) What is deflection sensitivity? Explain. 7M
   b) Explain about dielectric heating with relevant diagrams. 7M

OR

10. a) List the applications of CRO. 6M
    b) Write about voltage, current and frequency measurement using CRO. 8M

***

Hall Ticket Number :										

R-14

Code: 4G131

II B. Tech. I-Semester Regular Examinations Nov/Dec 2015

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 the significance of constructors in class 4M
   b) Explain defining friend Functions in C++ with example. 10M

OR

2. a) Why memory is required while running an application dynamically? 4M
   b) Explain dynamic memory allocation and de allocation in C++ with example. 10M

UNIT-II

3. a) What is polymorphism? 4M
   b) How polymorphism can be used in operator overloading in C++? 10M

OR

4. a) What is inheritance? 4M
   b) Explain inheritance types in C++ with example. 10M

UNIT-III

5. a) What are the advantages of stacks? 4M
   b) Illustrate an implementation of stack ADT in C++ with example. 10M

OR

6. a) What are the uses of hash functions? 6M
   b) Explain linear probing and quadratic probing. 8M

UNIT-IV

7. a) What are the uses of ADTs? 4M
   b) Explain realization of Priority Queue using Heaps with example. 10M

OR

8. a) What are the properties of Priority Queues? 4M
   b) Explain binary tree traversal methods. 10M

UNIT-V

9. a) What are the properties of B-Trees? 6M
   b) Explain insertion and deletion operations in B-Trees with example. 8M

OR

10. a) What are the disadvantages of brute force method? 4M
    b) Explain the Boyer – Moore algorithm. 10M

***

Hall Ticket Number :										

R-14

Code: 4G132

II B. Tech. I-Semester Regular Examinations Nov/Dec 2015

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 following numbers into decimals
   (i) $(B65F)_{16}$ 3M
   (ii) $(127.4)_8$ 3M
   (iii) $(4021.2)_5$ 3M
   b) Give the two binary numbers x=1010100 and Y=1000011,perform the subtraction x-y using 2^{l}s complement 5M

OR

2. a) Explain about digital logic gates with truth table and graphics symbols. 7M
   b) Explain the Boolean function F=xy+x^{l}z in a product of maxtern form 7M

UNIT-II

3. a) Explain about integrated circuits? 7M
   b) Simplify the Boolean function F(w,x,y,x) = Σ(0,1,24,5,6,8,9,12,13,14) using K-map 7M

OR

4. a) Simply the Boolean function F(w,x,y,z)= Σ(1,3,7,11,15) Which has the don't care conditions d(w,x,y,z)= Σ(0,2,5) using k-map 7M
   b) Explain about HDL(hardware description language) 7M

UNIT-III

5. a) Explain about Binary adder? 7M
   b) Explain about Binary Subtractor? 7M

OR

6. a) What is decoder? Explain with a neat sketch? 7M
   b) What is Encoder? Explain with a neat Sketch? 7M

UNIT-IV

7. a) What is latch and explain about SR Latch? 7M
   b) Explain about state reduction? 7M

OR

8. a) Explain About Ripple counters with a neat sketch? 7M
   b) Explain about Synchronous counters? 7M

UNIT-V

9. a) What is Hazard? Explain Hazards in Combinational circuits? 7M
   b) Explain SR Latch with NAND Gates? 7M

OR

10. a) Explain about Hamming code? 7M
    b) Write a short note about Read-Only memory? 7M

***

Hall Ticket Number :										

R-14

Code: 4G133

II B. Tech. I-Semester Regular Examinations Nov/Dec 2015

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 = 70Marks)

****

UNIT-I

1. a) Explain in detail about various languages evaluation criteria and the characteristics that affect them. 7M
   b) What are the factors that influence the basic design of Programming languages? 7M

OR

2. a) Give BNF and EBNF versions of an expression grammar? 7M
   b) Explain denotational semantics and axiomatic semantics? 7M

UNIT-II

3. a) Explain record, pointer and reference types with examples? 7M
   b) Explain about type checking, type compatibility, strong type? 7M

OR

4. a) Explain the design and implementation criteria used for record, union and array data types in programming languages. 7M
   b) Explain named constants and variable initialization with example. 7M

UNIT-III

5. a) Explain in detail about guarded commands. 7M
   b) Distinguish between static scoping and Dynamic scoping with example? 7M

OR

6. a) What are design issues for selection structures? 7M
   b) Define Co-routines? Write the design issues of Subprograms? 7M

UNIT-IV

7. a) Explain about Parameterized abstract data types with an example in C++? 7M
   b) Explain about generic sub programs. 7M

OR

8. a) Explain in detail about monitors and semaphores. 7M
   b) Discuss about exception handling in JAVA. 7M

UNIT-V

9. a) Write about functions in ML and Haskell. 7M
   b) Give applications of Logic programming. 7M

OR

10. a) List the applications of functional programming languages. 7M
    b) Give comparison of Functional and Imperative Languages. 7M

***

Hall Ticket Number :										

R-14

Code: 4G431

II B. Tech. I-Semester Regular Examinations Nov/Dec 2015

Mathematical Foundations of Computer Science

(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) Obtain Disjunction normal forms:
   i) ¬PvQ
   ii) (P^Q)v(¬P^R)v(Q^R) 7M
   b) Explain about Rules of inference? 7M

OR

2. a) Show that the formula Qv(P^¬Q)V(¬P^¬Q) is a tautology. 7M
   b) Describe Normal form and Explain. 7M

UNIT-II

3. a) Define relation and properties of binary relations? 7M
   b) Let X={1,2,3,4} and R={<x,y>|x>y}. Draw the graph of 'R' and also give its matrix. 7M

OR

4. a) Determine the properties of relations and their graphs. Also write the corresponding relation matrices. 7M
   b) Let R={<1,2>,<3,4>,<2,2>} and S={<4,2>,<2,5>,<3,5>,<1,3>} Find R®S, S®R, R®(S®R), (R®S) ®R, R®R, S®S and R®R®R? 7M

UNIT-III

5. a) Define principle of Inclusion and Exclusion. 7M
   b) Suppose that 200 faculty members can speak French and 50 can speak Russian, while any 20 can speak both French and Russian. How many Faculty members can speak either French (or) Russian? 7M

OR

6. a) Explain about Permutations with Theorem? 7M
   b) There are 21 constants and 5 vowels in the English alphabet. Consider only 8 letter words with 3 difference vowels and 5 different constants. How many such words formed and how many contain letter a, b, c? 7M

UNIT-IV

7. Solve $a_n - 8a_{n-1} + 21a_{n-2} - 18a_{n-3}=0$ for $n\geq 3$? 14M

OR

8. a) $a_n-6a_{n-1}+12a_{n-2}-18a_{n-3}=0$ by generating functions? 7M
   b) Calculate $B(X)=\sum^{\infty}_{r=0} b_rX^r=1/(X^2-5X+6)$ 7M

UNIT-V

9. a) Define Graph and explain representations of graph with diagrams. 7M
   b) Explain about Isomorphic and Draw Isomorphic graphs? 7M

OR

10. a) Explain about BFS and DFS? 7M
    b) Write BFS algorithm for a Spanning Tree? 7M

***