Hall Ticket Number :										

Code: 5G144

R-15

II B.Tech. II Semester Supplementary Examinations December 2017

Object Oriented Programming

(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) Describe Primitive, Boolean data Types? 7M
   b) Write about Relational and Logical Operations? 7M

OR

2. a) Discuss about Method Overloading? 7M
   b) How a constructor is different from other Methods in Java? 7M

UNIT–II

3. a) Explain Dynamic Method Dispatch? 7M
   b) How to prevent Overriding using Final? 7M

OR

4. a) Compare the class and Interface? 7M
   b) Define a package and Class path? 7M

UNIT–III

5. a) Distinguish throw and throws? 6M
   b) What do mean by an Exception and error? Give the hierarchy of the exceptions in Java? 8M

OR

6. a) Write about thread Life cycle? 6M
   b) Why thread in called light weight task and process heavy weight task? 8M

UNIT–IV

7. a) Explain the List interface and the stored set interface? 7M
   b) Describe about the Tree set class and the array deuce classes? 7M

OR

8. a) Discuss the life cycle of an Applet? 7M
   b) Write about Border Layout? 7M

UNIT–V

9. a) Discuss about Event Listeners? 7M
   b) Write about Component and Containers? 7M

OR

10. a) Describe briefly about TCP, UDP, URL? 6M
    b) What is InetAddress? How to create an InetAddress? 8M

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Hall Ticket Number :										

R-15

Code: 5GC42

II B.Tech. II Semester Supplementary Examinations December 2017

Probability and Statistics

(Common to CE, ME & 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) Box A contains nine cards numbered 1 to 9 and box B contains five cards numbered 1 to 5. A box is chosen at random and a card is drawn, if the card shows an even number another card is drawn from the same box, if the card shows an odd number, a card is drawn from the other box.
   (i) What is the probability that the both cards show an even number?
   (ii) If both cards show even number, what is the probability that they come from box A.
   (iii) What is the probability that both cards are odd? 7M

   b) i. If A and B are independent events. Then prove that A^c and B^c are also independent events.
   ii. If A and B are independent events. Then show that A and B^c are also independent events 7M

OR

2. a) If X is a continuous random variable and y= ax+b, prove that
   E(y) = a E(X) + b and $V(y) = a^2 V(x)$ 7M

   b) A continuous random variable is given by $f(x) = \begin{cases} k(1-x^2), 0 < x < 1 \\ 0, otherwise \end{cases}$.

   Find i) k, ii) mean iii) variance. 7M

UNIT–II

3. a) Explain the properties and importance of Normal Distribution. 7M

   b) If a poisson distribution is such that P(x=1). $\frac{3}{2}$ P (x= 3). Find
   (i) P (x ≥ 1) (ii) P (x ≤ 3) (iii) P (2 ≤ x ≤ 5) 7M

OR

4. In a Normal distribution 31% of the items are under 45 and 8% are 64. Find the mean and standard deviation of the distribution. 14M

UNIT–III

5. A population consists of 5, 10, 14, 18, 13, 24. Consider all possible samples of size 2 which can be drawn without replacement from the population. Find
   i. The mean of the population
   ii. The standard deviation of the population
   iii. The mean of the sampling distribution of means
   The standard deviation of sampling distributions of means. 14M

OR

6. a) Find 95% confidence limits for the mean of a normality distributed population from which the following sample was taken 15,17,10,18,16,9,7,11,13,14. 7M

   b) What is the maximum error one can expect to make with probability 0.90 when using the mean of a random sample of size n=64 to estimate the mean of population with variance 2.56. 7M

UNIT–IV

7. a) A sample of 64 students have a mean weight of 70 kgs. Can this be regarded as a sample from a population with mean weight 56 kgs and standard deviation 25 kgs. 7M

   b) Random samples of 400 men and 600 women were asked whether they would like to have a flyover near their residence. 200 men and 325 women were in favor of the proposal. Test the hypothesis that proportions of men and women in favor of the proposal are same, at 5% level. 7M

OR

8. a) Experience had shown that 20% of a manufactured product is of the top quality. In one day, production of 400 articles only 50 are of top quality. Test the hypothesis at 0.05level. 7M

   b) In a study on the influence of habitation, the intelligent quotients (IQs) of 16 students from urban area was found to have a mean of 107 and standard deviation of 10, while the IQs of 14 students from a rural area showed a mean of 112 and standard deviation of 8. Determine whether the IQs differ significantly at 0.05 level. 7M

UNIT–V

9. From the following data find whether there is any significant liking in the habit of taking soft drinks among the categories of the employees.

Soft drinks	Clerks	Teachers	Officers
Pepsi	10	25	65
Thumsup	15	30	65
Fanta	50	60	30

14M

OR

10. Fit a poisson distribution and test the goodness of it for the following data.

X	0	1	2	3	4
f(x)	109	65	22	3	1

14M

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Hall Ticket Number :										

R-15

Code: 5G442

II B.Tech. II Semester Supplementary Examinations December 2017

Software Engineering

(Information Technology)

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. Explain unified process? Elaborate on the unified process work products? 14M

OR

2. Elaborate about the evolutionary process models? 14M

UNIT–II

3. Write short notes on
   a) Behavioral model and 7M
   b) Object model 7M

OR

4. Discuss how feasibility studies are important in requirement engineering process? 14M

UNIT–III

5. Classify about the pattern based software design in a detail manner? 14M

OR

6. Describe briefly about the Design model and Design quality in Design Engineering? 14M

UNIT–IV

7. Discuss Interface Design steps in a brief manner? 14M

OR

8. Compare in detail on Validation Testing and System Testing? 14M

UNIT–V

9. Explain in detail about Software Measurement? 14M

OR

10. Demonstrate briefly on the statistical SQA? 14M

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Hall Ticket Number :										

Code: 5G142

R-15

II B.Tech. II Semester Supplementary Examinations December 2017

Design and Analysis of Algorithms

(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) Define Space and Time Complexities with an example 7M

   b) Write an algorithm for finding minimum element of an array. Find best and worst case time complexities with an appropriate order notation. 7M

OR

2. What is meant by Disjoint Set? Explain the operations performed on disjoint sets with examples. 14M

UNIT–II

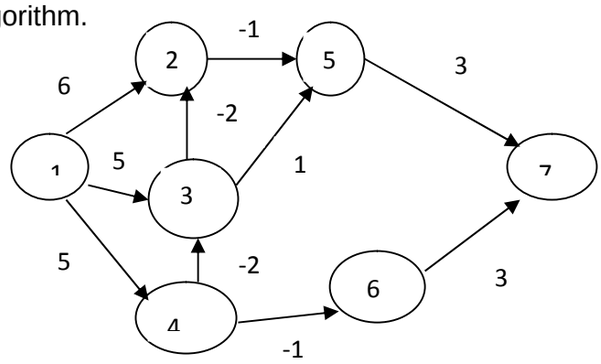
3. a) Distinguish between Quick Sort and Merge Sort according to their time complexities (derive time complexities). 7M

   b) Write recursive algorithm for Binary Search. And derive it's time complexity. 7M

OR

4. a) Find an optimal solution for the Job Sequencing with deadlines problem with n=7,(P1:P7)=(3,5,20,18,1,6,30) and (d1:d7)=(1,3,4,3,2,1,2) 7M

   b) Find the shortest paths from source 1 to remaining all nodes using Shortest Path Algorithm.



7M

UNIT–III

5. Using OBST algorithm, compute w (i, j) , r (i, j) & c(i, j), $0 \le I < j \le 4$, for the identifier set (a1,a2,a3,a4) = (do, if, int, while) with p(1:4)=(3,3,1,1) and q(0:4)=(2,3,1,1,1). Using r(i,j) construct the OBST. 14M

OR

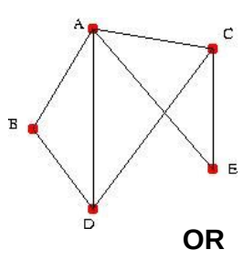
6. a) Write the control abstraction for Dynamic programming. 5M

   b) Explain Matrix Chain Multiplication Algorithm with an example. 9M

UNIT–IV

7. a) State and explain 8-Queen's problem with an example. 8M

   b) What is Hamiltonian Cycle? Apply backtracking to find Hamiltonian cycle in the below graph.



6M

OR

8. Draw the portion of the state space tree generated by LCBB for the following knapsack instances: n=4,(P1:P4)=(10,10,12,18), (w1:w4)=(2,4,6,9) and m=15. 14M

UNIT–V

9. a) Explain the classes P and NP. 7M

   b) Explain the Non-deterministic algorithm with example 7M

OR

10 State and Explain Cook's Theorem. 14M

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Hall Ticket Number :										

R-15

Code: 5G441

II B.Tech. II Semester Supplementary Examinations December 2017

Database Management Systems

(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)

UNIT–I

1. a) What are the different types of user interface designed for database users? Discuss the main activities of each. 7M

   b) Briefly discuss about architecture of database system with diagram. 7M

OR

2. a) List four significant difference between a file processing system and a DBMS. 7M

   b) Explain various query processor components and its functions. 7M

UNIT–II

3. Draw ER diagram for the company database incorporating all the ER notations with explanation. 14M

OR

4. a) What are the steps in designing a database? 7M

   b) With examples, explain enforcing integrity constraint. 7M

UNIT–III

5. a) Write SQL statement to get a list of out-of-warranty products that have been stored more than 90 days. 7M

   b) Briefly discuss about virtual table. 7M

OR

6. a) Write SQL statement to see a listing of all rows for which the vendor code is not 21344. 7M

   b) With an example, explain trigger and its needs. 7M

UNIT–IV

7. a) Compute the closure of the following set F of functional dependencies for relation schema r (A, B, C, D, E).

   $A \rightarrow BC$

   $CD \rightarrow E$

   $B \rightarrow D$

   $E \rightarrow A$ 7M

   b) With an example, explain 1st normal form(NF). 7M

OR

8. a) Give an example of a relation schema R and a set of dependencies such that R is in BCNF but is not in 4NF. 7M

   b) With an example, explain 2nd normal form(2 NF). 7M

UNIT–V

9. a) How does a B+ tree index handle search, insert and delete? 7M

   b) With diagram, explain tree structure index. 7M

OR

10. a) Describe how search, insert and delete operations work in ISAM indexes. 7M

    b) How data organized in a hash-based index. When would you use a hash-based index? 7M

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Hall Ticket Number :										

R-15

Code: 5GA41

II B.Tech. II Semester Supplementary Examinations December 2017

Managerial Economics and Financial Analysis

(Information Technology)

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. Discuss the applications of managerial economics in managerial decision making. 14M

OR

2 What is meant by Demand? Explain the Law of Demand and its determinants and exceptions. 14M

UNIT–II

3. Explain the following:
   a) Internal economies of scale
   b) Break-even point
   c) Implicit costs Vs. Explicit costs 14M

OR

4. From the following particulars Calculate
   a) P/V Ratio b) Break-even sales c) Sales required to earn a profit of Rs.4,50,000
   Fixed cost = Rs.90,000
   Variable cost per unit: Direct material Rs.5, Direct Labour Rs.2,
   Direct overheads = 100% of direct labour
   Selling price per unit = Rs.12 14M

UNIT–III

5. What do you mean by Monopolistic market structure? Explain the price-output determination in Monopolistic market structure in short run and long run. 14M

OR

6. a) What are the various forms of business organization? Explain the differences between Sole proprietorship and company form of organization. 7M

   b) What are the features of Oligopoly market**?** 7M

UNIT–IV

7. Explain the importance of capital budgeting decisions. Discuss the techniques of capital budgeting decisions. 14M

OR

8. A firm whose cost of capital is 10% is considering two mutually exclusive projects X and Y, the details of which are as follows:

Year	Project X	Project Y
0 (Cost)	70,000	70,000
1	10,000	50,000
2	20,000	40,000
3	30,000	20,000
4	45,000	10,000
5	60,000	10,000

Given Cost of Capital as 10%, Compute the Net Present Value, Profitability Index of the two projects. 14M

UNIT–V

9. What are the various types of ratios used in financial analysis? How do you calculate liquidity and solvency ratios? 14M

OR

10. The following trial balance has been taken out from the books of XYZ as on 31st December, 2016.

	Dr. Rs.	**Cr.** Rs.
Plant and Machinery	100,000	
Opening stock	60,000	
Purchases	160,000	
Building	170,000	
Carriage inward	3,400	
Carriage outward	5,000	
Wages	32,000	
Sundry debtors	100,000	
Salaries	24,000	
Furniture	36,000	
Trade expense	12,000	
Discount on sales	1,900	
Advertisement	5,000	
Bad debts	1,800	
Drawings	10,000	
Bills receivable	50,000	
Insurance	4,400	
Bank balances	20,000	
Sales		480,000
Interest received		2,000
Sundry creditors		40,000
Bank loan		100,000
Discount on purchases		2,000
Capital		171,500
Total	**795,500**	**795,500**

Closing stock is valued at Rs. 90,000. Prepare profit and loss account for the year ended 31.12.2016 and the balance sheet as on that date. 14M

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