R09

B. Tech II Year II Semester (R09) Supplementary Examinations, November/December 2012
DATABASE MANAGEMENT SYSTEMS
(Common to CSS, IT & CSE)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   (a)   List out different databases and explain.
    (b)   Explain basic building blocks of data model.

2   (a)   What is an entity? Explain about the types of entities with diagrams.
    (b)   Define primary key. When does a composite primary key used?

3   (a)   What is join operator? Explain about all types of joins with examples.
    (b)   Explain the concept of data redundancy.

4   (a)   Explain how to order a list in advanced select query and how to list the unique values in
          them.
    (b)   What is a stored procedure? Explain with example.

5   What is normalization? Explain the process of normalization with suitable examples.

6   Explain about:
          (a) Lock granularity.
          (b) Lock types.
          (c) Phase locking.

7   Explain about the following:
          (a) Immediate database recovery.
          (b) Restart recovery.
          (c) ARIES.

8   Write the advantages of following terms:
          (a) Data dictionary
          (b) ISAM.
          (c) B-Tree indexes.
          (d) Hashing.

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II B. Tech II Semester (R09) Supplementary Examinations, November/December 2012
OBJECT ORIENTED PROGRAMMING
(Common to CSS, IT & CSE)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) What is byte code in java? Why java does not support pointers? Explain.
   (b) Write a java program to reverse a given long integer**.**

2 (a) Describe the genesis of java. And write brief over view of java.
   (b) List the differences between C and JAVA.

3 (a) What is abstract class?   Explain with an example.
   (b) Explain the procedure to call super class members with examples.

4 (a) How do we add a class or an interface to a package?
   (b) With an example explain the implementation of java interface.

5   Explain the concepts of multi threading in java. What are the two methods available in java to implement multi threading in java?

6 (a) What is event delegation model? Explain it.   What are the benefits of it?
   (b) Define event. Give examples of events. Define event handler. How it handles events?

7 (a) What is an applet? Explain briefly.
   (b) What are the different types of applets?

8 (a) How, different machines in a network can be addressed?
   (b) What are the users of server/client socket class? Explain each of them with an example.

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R09

B. Tech II Year II Semester (R09) Supplementary Examinations, November/December 2012
DESIGN & ANALYSIS OF ALGORITHMS
(Common to CSS, IT & CSE)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) Present an algorithm for finding Fibonacci sequence of a given number.
   (b) Discuss about space complexity in detail.

2 (a) Describe UNION and FIND algorithms.
   (b) What are disjoint sets and its operations? Explain.

3 (a) Write an algorithm for quick sort by using recursive method.
   (b) Derive the time complexity for quick sort.

4 (a) Write a detailed note on greedy knapsack.
   (b) Give brief description on general method of greedy.

5 (a) Discuss the dynamic programming solution for the problems of reliability design.
   (b) Define merging and purging rules in O/1 knapsack problem.

6 (a) Explain in detail about back tracking.
   (b) Explain the graph coloring with an example.

7   Use the LC approach to solve the Knapsack problem with n=3, m=20
            $(P_1, P_2, P_3) = (25,24,15)$, $(W_1, W_2, W_3) = (18,15,10)$

8   Consider the problem DNF-DISSAT which takes a Boolean formula S in disjunctive
       normal form (DNF) as input and asks if S is dissatisfiable that is variable of S so that if
       evaluates to 0. Show that DNF – DISSAT is Np - complete.

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B. Tech II Year II Semester (R09) Supplementary Examinations, November/December 2012
PRINCIPLES OF PROGRAMMING LANGUAGES
(Information Technology)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) What is script? Explain different scripting languages.
   (b) Describe characteristics that contribute to the readability of a programming language.

2 (a) Define attribute grammar.
   (b) Write attribute grammar for simple assignment statement.

3 (a) What are design issues of character string types? Explain different library functions for character strings in C and C++.
   (b) What is enumeration data type? Explain with example.

4 (a) Explain the concepts of type conversions.
   (b) Write relational operators of Ada, Fotran and C based Languages.

5 (a) Explain why parameter passing is more flexible than direct access to non local variables.
   (b) Explain in detail two ways of mapping actual parameters to corresponding formal parameters.

6 (a) Define user defined abstract data type.
   (b) What are parameterized abstract data types? Explain with examples in Ada.

7 (a) Explain the closed world assumption used by prolog. Why is this limitation?
   (b) What are the three primary uses of symbolic logic in formal logic?

8 (a) Give brief description about the different iterative commands that are present in python language.
   (b) Write a procedure that accepts any number of arguments and prints them one per line using python language.

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B. Tech II Year II Semester (R09) Supplementary Examinations, November/December 2012
ENVIRONMENTAL SCIENCE
(Common to CE, ME, IT, CSE, AE, BT and MCT)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   Discuss about the need for public awareness regarding environmental science.

2   (a)   Discuss the classification of natural resources with examples.
     (b)   Write about deforestation and associated problems.

3   (a)   Explain the concept of an ecosystem with the help of an example.
     (b)   Write about the structure and functions of an aquatic ecosystem.

4   (a)   Discuss India as a mega diversity nation.
     (b)   Explain in-situ and ex-situ conservation of biodiversity.

5   (a)   Define noise pollution. Give the causes, effects and control measures of noise
           pollution.
     (b)   Write about disaster management in respect of an earthquake.

6   (a)   Explain the sustainability principle. What do you mean by sustainable development?
     (b)   Write notes on ozone layer depletion.

7   (a)   Write about population explosion and its effects on human population and
           environment.
     (b)   What is the role of government in "women and child welfare"?

8   (a)   What are the measures to be adopted for control of HIV/AIDS by the government?
     (b)   Write notes on consumerism and waste products.

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R09

PROBABILITY & STATISTICS
(Common to CE, ME, CSS & IT)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   (a)   A fair coin is tossed 5 times. What is the probability of having at least one head?
    (b)   In a team of communication engineers, 80% know probability theory, 75% know information theory and 70% know both probability theory and information theory. Calculate the percentage of engineers who know neither probability theory nor information theory.

2   A random variable x has the following probability function

X= x	0	1	2	3	4	5	6	7
P(X=x)	0	K	2k	2k	3k	k^2	$2k^2$	$7k^2+k$

    (i) Find the value of k   (ii) $P(x \le 5)\, and\, P(x > 5)$ (iii) P(0<x<6)

3   Two dice are thrown X assign to each point if S the sum of the variables on the faces. Find the mean and variance of the random variable.

4   Samples of size 2 are taken the population 1, 2, 3, 4, 5, 6 (i) With replacement and without replacement. Find: (i) The mean of population. (ii) Standard deviation of the population. (iii) Means of sampling distribution. (iv) Standard deviation of the means of sampling distribution. Verify that means of sampling distribution is equal to the mean of population and standard deviations of the means of sampling distribution are not equal to the standard deviation of the population.

5   (a)   Define estimate, estimator and estimation.
    (b)   In how many ways the estimation can be done and what are they. Explain in detail.

6   (a)   A social worker believes that fewer than 25% of the couples in a certain area have ever used any form of birth control. A random sample of 120 couples was contacted. Twenty of them said they have used. Test the belief of the social worker at 0.05 level.
    (b)   A sample of 64 students has a mean weight of 70 kgs. Can this be regarded as a sample from a population with mean weight of 56 kgs. and S.D. 25 kgs at $\alpha = 0.01$.

7   Scores obtained in a shooting competition by 10 soldiers before and after intensive training are given below:

Before	67	24	57	55	63	54	56	68	33	43
After	70	38	58	58	56	67	68	75	42	38

    Test whether the intensive training is useful at 0.05 level of significance.

8   (a)   Explain about Poisson distribution in the queuing system.
    (b)   Explain about exponential distribution in the queuing system.
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