Code: 9A15403

R9

II B. Tech II Semester (R09) Supplementary Examinations, November/ December 2011
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 exception? Explain the exception handling mechanism using python.
(b) Write a procedure to find the greatest common divisor by using python language.

2 What are different types of notations available for expressing the syntax of a programming language? Explain in brief about each one with suitable examples.

3 Explain in detail about the implementation of arithmetic, relational and Boolean expressions in a programming language.

4 (a) Explain six primary reasons for studying programming languages.
(b) Write the difference between compiler and interpreter.

5 Explain about threads in Java and C #.

6 Explain in detail exception handling in Ada.

7 (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.

8 (a) Explain design issues of functions.
(b) Explain user defined over loaded operators.

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Code: 9ABS401

R09

II B. Tech II Semester (R09) Supplementary Examinations, November/ December 2011

PROBABILITY & STATISTICS

(Common to Civil Engineering, Mechanical Engineering, Computer Science & Systems Engineering & Information Technology)

Time: 3 hours Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 If 20% of the memory chips made in a certain plant are defective. What are the probabilities that in a lot of 100 randomly chosen for inspection?
(a) At most 15 will be defective. (b) Exactly 15 will be defective.

2 A student appears for tests I, II & III. The student is successful if he passes either in test I and II or tests I and III. The probability of the student passing in test I, II, III is p, q and ½ respectively. If the probability that the student is successful is ½ then find the relation between p and q.

3 Determine the expected number of families to have (a) 2 boys and 2 girls (b) at least one boy (c) No girls (d) at most two girls, out of 800 families with 4 children each. Assume equal probabilities for boys and girls.

4 (a) Find the maximum difference that we can expect with probability 0.95 between the means of sizes 10 and 12 from a normal population if their standard deviations are found to be 2 and 3 respectively.
(b) If two independent random samples of sizes n_1 =9 and n_2=16 are taken from a normal population. What is the probability that the variance of the first sample will be at least 4 times as large as the variance of the second sample?

5 (a) Give the difference between the interval estimation and the Bayesian estimation.
(b) The mean weight loss of n= 16 grinding balls after a certain length of time in mill slurry is 3.42 grams with a S.D. 0.68 grams. Find the maximum error of estimate at 99% confidence interval. Also construct a 99% confidence interval for the true mean weight loss of such grinding balls under the stated conditions.

6 (a) What is meant by Level of Significance?
(b) In a sample of 1000 people in Karnataka 540 are rice eaters and rest is wheat eaters. Can we assume that both rice and wheat are equally popular in this state at 1% level of significance.
(c) It is claimed that a random sample of 49 tires has a mean life of 15200 kms. This sample was drawn from a population whose mean is 15150 kms. And a S.D. of 1200 kms. Test the significance at 0.05 levels.

7 A random sample of a company's very extensive files show that the orders for a certain kind of machinery were filled, respectively in 10, 12, 19, 14, 15, 18, 11 and 13 days. Use α = 0.01 level of significance to test the claim that on average such orders are filled in 10.5 days. Assume normality.

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

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Code: 9ABS402 R9

II B.Tech II Semester (R09) Supplementary Examinations, November/December 2011
ENVIRONMENTAL SCIENCE
(Common to Civil Engineering, Mechanical Engineering, Computer Science & Engineering, Information Technology, Aeronautical Engineering and Biotechnology)

Time: 3 hours **Max Marks: 70**

Answer any FIVE questions
All questions carry equal marks

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1. Discuss the multidisciplinary nature of environmental studies.

2. (a) Write about forest resources use and over exploitation.
   (b) Discuss environmental issues concerning extracting and using mineral resources.

3. (a) Discuss the concept of an ecosystem.
   (b) Discuss about a desert ecosystem.

4. (a) Explain insitu and exsitu conservation of biodiversity.
   (b) Give the biogeographical classification of India.

5. (a) Define nuclear hazard. Give cause, effects and control measures of nuclear hazards.
   (b) Discuss solid waste management of industrial waste.

6. (a) Discuss how rainwater can be harvested in rural and urban areas.
   (b) Write the salient points of 'Forest Conservation Act'.

7. (a) Write about the measures being taken by the government in controlling AIDS.
   (b) Discuss the role of IT in environment and human health.

8. (a) Write about global warming and its effects.
   (b) Discuss about the role of an individual in prevention of pollution.

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Code: 9A05401

R09

II B. Tech II Semester (R09) Supplementary Examinations, November/ December 2011

DATABASE MANAGEMENT SYSTEMS

(Common to Computer Science & Systems Engineering, Information Technology & Computer Science & Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 (a) Let R= {A, B, C, D and E}. FD's= {AB→C, A→D, D→E, AC→B}. List all candidate key, prime attribute and non-prime attribute.
(b) Discuss attribute semantics as an informal measure of goodness for a relation schema.

2 (a) Explain about the remote backup system.
(b) Explain about concept of the buffer management in details.

3 (a) How the concurrency can be controlled using optimistic method Explain?
(b) Explain about database recovery management.

4 (a) List and explain steps to develop an ER diagram for an university.
(b) What is an overlapping subtype? Give an example.

5 What is a relationship? What are the different types of relationships that are used in relational database? Explain with examples.

6 What is RAID? Discuss.

7 (a) Explain object oriented model and network model in degrees of data abstraction.
(b) What are the functionalities of data base administrator?

8 (a) What is an index? What are the operations that are performed on an index?
(b) Write about the conversion functions in advanced SQL.

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Code: 9A05402

R09

II B. Tech II Semester (R09) Supplementary Examinations, November/December 2011

OBJECT ORIENTED PROGRAMMING

(Common to Computer Science & Systems Engineering, Information Technology & Computer Science & Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 (a) What is meant by responsibility? Explain it in detail.
(b) Define class. Write and explain the hierarchy of classes.

2 (a) Write short notes on "this" keyword and garbage collection in java.
(b) Explain the different parameter passing techniques with example programs.

3 (a) What is the use of "final" keyword? Explain with example program.
(b) Give brief description about the abstract classes.

4 (a) What is an interface? How can we implement multiple inheritance in java? Explain.
(b) What is the use of CLASSPATH? Explain.

5 (a) Draw and explain the life cycle of a thread.
(b) Write short notes on java build in exceptions.

6 Explain the different layout managers in detail.

7 (a) Differentiate between applet programming and application programming.
(b) Draw and explain the life cycle of an applet program.

8 (a) Explain in detail about the networking classes and interfaces.
(b) Give brief description about the inetAddress.

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Code: 9A05403 R9

II B. Tech II Semester (R09) Supplementary Examinations, November/December 2011
DESIGN & ANALYSIS OF ALGORITHMS
(Common to Computer Science & Systems Engineering, Information Technology & Computer Science & Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) Discuss in detail about the following:
(i) Bigh Oh (ii) Omega (iii) Theta notations
(b) Differentiate between non recursive and recursive algorithms. Write a non recursive algorithm to find the factorial of a given number.

2 (a) Write algorithms for WeightedUnion and CollapsedFind.
(b) What are bi connected components? Explain them in detail.

3 (a) Discuss about the time complexity of stressen's matrix multiplication.
(b) Write an algorithm for sorting elements by using quick sort technique and discuss about its time complexity.

4 (a) Write short notes on the general method of the greedy technique.
(b) Give brief description about the job sequencing with deadlines.

5 (a) Briefly describe about the All pairs shortest path problem.
(b) Write a short note on reliability design.

6 (a) Discuss in detail about the graph coloring.
(b) Write short notes on Hamiltonian cycles.

7 Consider the traveling salesperson instance defined by the cost matrix.

$$\begin{pmatrix} \propto & 20 & 30 & 10 & 11 \\ 15 & \propto & 16 & 04 & 02 \\ 03 & 05 & \propto & 02 & 04 \\ 19 & 06 & 18 & \propto & 03 \\ 16 & 04 & 07 & 16 & \propto \end{pmatrix}$$

(a) Find the reduced cost matrix.
(b) Draw the state space tree.
(c) Find the minimum cost path.

8 (a) Give brief description about the classes of NP hard and NP complete.
(b) Explain in detail about the decision problem and non deterministic machine.

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