Code: 9A05401

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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Code: 9A05402

R09

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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Code: 9A05403

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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Code: 9A05406

R09

II B. Tech II Semester (R09) Supplementary Examinations, November/December 2012

COMPUTER ORGANIZATION

(Common to ECC & CSE)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 Explain in detail the single bus structure.

2 List and explain different types of computer instructions. Also provide their formats.

3 (a) What is a pipeline register? What is the use of it? Explain in detail.
(b) Why do we need some bits of current microinstruction to generate address of the next microinstruction? Support with a live example.

4 (a) Explain about normalization in floating point representations.
(b) Write an algorithm for multiplication of two unsigned numbers using shift and add method.

5 (a) Draw a flowchart and explain the organizations of ROM and PROM.
(b) Write in detail and compare EPROM and EEPROM.

6 Explain in detail the data transfer process to and from peripherals.

7 (a) List the techniques used to avoid data conflicts.
(b) Explain the advantages of the loop buffer.

8 Discuss in detail about Inter processor communication and synchronization.

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Code: 9A05407

R09

B. Tech II Year II Semester (R09) Supplementary Examinations, November/December 2012

FORMAL LANGUAGES & AUTOMATA THEORY

(Computer Science & Engineering)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 An NFA with states 1-5 and input alphabet [a, b] has the following transition table:

q	δ (q,a)	δ(q,b)
1	{1,2}	{1}
2	{3}	{3}
3	{4}	{4}
4	{5}	{ϕ}
5	{ϕ}	{5}

(a) Draw a transition diagram.
(b) Calculate δ*(1, ab).
(c) Calculate δ*(1, abaab).

2 (a) Explain about finite automata with output.
(b) Discuss in detail the two types of FA with output with example for each.

3 Give a DFA for accepting L = {$a^n b^m$|abs (n-m) mod 3$\leq$1} and show that L is non regular.

4 Construct regular grammar for following languages.
(a) {a^{2n}|n$\geq$1}. (b) {$(ab)^n$|n$\geq$1}. (c) The set of all strings over {a,b} ending in a.

5 (a) Show that the following grammar is ambiguous and also eliminate the ambiguity using the if else rules in C language.

S → **if** (c) S / **if** (c) S **else** S **/** S.

(b) What are unit productions? Write the disadvantages of unit productions. Write the procedure for eliminating unit productions from a given CFG. Eliminate unit productions from the following grammar.

E → E+T / T T → T*F / F F → (E) / **id**

6 (a) Write short notes on:
(a) DPDA and NPDA. (b) Equivalence of CFG and PDA's.

7 (a) Write short notes on Church's hypothesis.
(b) Discuss in detail about various modifications that can be done to the basic model of a Turing machine.

8 (a) Show that PCP is undecidable over one symbol alphabet.
(b) Explain about Chomsky hierarchy of languages.

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Code: 9ABS402 / 9ABS303

R09

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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