Code No: XXXXX

R 13

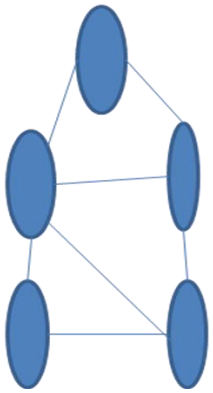
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B.Tech II Year II Semester Examinations
DESIGN AND ANALYSIS OF ALGORITHMS
(Common to Computer Science and IT)

Time: 3 hours **Max Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

1. a) Define Algorithm [2m]
b) Define Big-oh notation with example [3m]
c) What is time complexity of job sequencing with deadlines? [2m]
d) What are the applications of Greedy Method? [3m]
e) What are the Multistage Graphs? [2m]
f) Write the Formulaes for the OBST? [3m]
g) What are applications of Backtracking? [2m]
h) What is the Chromatic number for the given graph ? [3m]



i) Define 'P' Problem [2m]
j) How many types of Problems are there? [3m]

PART-B

2. a). Explain the disjoint set operations using trees.
b). Write Union and Find Algorithms?

OR

3. Show how Merge sort sorts the following sequences of key in descending order 12,24,33,44,48,56,57,65,76,84 with neat diagram representing sequence of recursive call, and write its time complexity.

4. ***a).*** Explain the Knapsack Problem.

b). Find an Optimal Solution to the Knapsack instance n=7, m=15 and (p1,p2----p7)=(10,5,15,7,6,18,3) and (w1,w2,-----w7)=(2,3,5,7,1,4,1).

OR

5. Find the feasible solution for Job Sequencing with deadlines for the instance n=5, (p1---p5)=(20,15,10,5,1) and (d1---d5)=(2,2,1,3,3).

6. What do you mean by forward and backward approach of problem solving in Dynamic Programming with examples.

OR

7. Design a three stage system with device types D1, D2, D3. The costs are Rs.30, Rs. 15, Rs.20 respectively. The cost of the system is to be not more than Rs.105. The reliability of each device type is 0.9,0.8,0.5 respectively.

8. Let W={7,4,10,23,35,20,32} and m=55, Find all possible subsets of W that sum to m. Draw the portion of the state space tree that is generated.

OR

9. Consider the TSPP instance defined by cost matrix an draw the state space tree.

∞	11	10	9	6
8	∞	7	3	4
8	4	∞	4	8
11	10	5	∞	5
6	9	5	5	∞

10. Write Cook's Theorem with an example.

OR

11. Explain about different types of NP Problem.

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PART-A

1. a) Write the Properties of the algorithm? [2m]
b) Define Omega notation with example [3m]
c) What the general method for Greedy Method? [2m]
d) Write the formulae for the 0/1 Knapsack problem and its time complexity. [3m]
e) Write the formulae for the forward approach in multistage graph. [2m]
f) Explain about TSPP? [3m]
g) Write the time complexity for the 8-Queens Problem [2m]
h) Write general method for Branch and Bound [3m]
i) Define 'NP' [2m]
j) Explain Cook's Theorem. [3m]

PART-B

2. Two sets S1 and S2 are given as below
S1={1,2,4,6} and S2 ={7,8}
a) Draw disjoint sets S1 and S2 using Trees
b) Draw disjoint sets S3 using Trees such that S3=S1 U S2
c) Draw disjoint sets S4 using Trees such that S4=S2 U S1
d) Give Pointer representation of S1, S2, S3 and S4.

OR

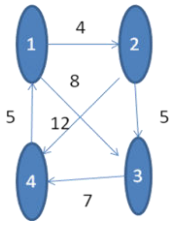
3.a). Discuss control abstraction for divide and conquer strategy.
b). By apply divide and conquer strategy, write a recursive and non-recursive algorithm for Binary Search.

4. Write Kruskal's and Prim's algorithm that generates minimum spanning tree for every connected undirected graph with an example.

OR

5. Write Jobsequencing with deadlines algorithm.

6.a). Obtain All pair shortest paths foe the following graph.



b). Derive the Mathematical formulation in reliability design.

OR

7. Derive the recurrence equation used in OBST problem with an example, explain how to compute all C(i,j), w(i,j), r(i,j).

8. Draw the portion of the state space tree for m-coloring of a graph and its algorithm.

OR

9. Explain the 4-Queens problem using backtracking with example and its algorithm.

10. Explain P, NP, NP-Hard and NP-Complete Classes? Give relationship between them.

OR

11. Explain SAT with example.

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Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

1. a) Write the Issues of the algorithm? [2m]
b) Define Theta notation with example [3m]
c) What the general method for Greedy Method? [2m]
d) Write the procedure for Prim's Algorithm. [3m]
e) Write the formulae for the backward approach in multistage graph. [2m]
f) Explain Reliability Design? [3m]
g) Write the time complexity for TSPP in Branch and Bound [2m]
h) Define FIFO and LIFO [3m]
i) Define 'NP-Hard problem [2m]
j) Explain SAT. [3m]

PART-B

2. a). Write and explain the algorithm for collapse rule with an example.
b). Describe the strongly connected components with an example.

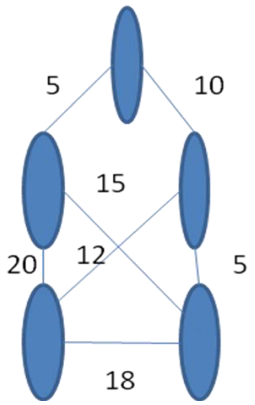
OR

3. Write the Procedure of Quick sort with an Example and its algorithm.

4. Write 0/1 Knapsack problem algorithm and procedure with an example.

OR

5.a). Write the difference between Divide and Conquer and Greedy Method.
b). Find the minimum Spanning tree by using Prim's and Kruskal's algorithm



6. Write algorithm for 0/1 Knapsack Problem using dynamic programming with an example

OR

7. a).Discuss the general method for the Dynamic Programming.

b). How the reliability of the system can be increased?

8. Describe the TSPP in Branch and Bound with example.

OR

9. Explain the Principles of FIFO and LC Branch and Bound.

10. Briefly explain the concepts of NP-Hard and NP-Complete?

OR

11. Explain Non-Deterministic algorithms? Give some Examples?

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Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

1. a) Define time complexity with example. [2m]
b) Write Pseudocode for the factorial of 'n' numbers. [3m]
c) Write the time complexity for the job sequencing with deadlines [2m]
d) Write the procedure for Kruskal'sAlgorithm. [3m]
e) Write the formulae for the 0/1 Knapsack problem [2m]
f) Explain about APSPP? [3m]
g) What are the Applications of Branch and Bound. [2m]
h) Define Hamiltonian cycle and give one example. [3m]
i) Define NP-Complete problem [2m]
j). Write the Non-Deterministic Algorithm. [3m]

PART-B

2. Explain the Merge sort with an example, write the algorithm and running time of Merge Sort

OR

3. Compute the Product of the following matrices of 4*4 size, using Strassen's matrix multiplication method.

$$A=\begin{bmatrix}1&2&3&4\\5&6&7&8\\9&1&2&3\\4&5&6&7\end{bmatrix} \qquad B=\begin{bmatrix}8&9&1&2\\3&4&5&6\\7&8&9&1\\2&3&4&5\end{bmatrix}$$

4. Write an algorithm to find the minimum no.of edges that need to be removed from an undirected graph so that the resulting graph is Acyclic.

OR

5. Write an algorithm for SSSPP with an example?

6. Find an Optimal Solution to the 0/1 Knapsack instance n=3, weights and profits as (w1,w2,w3)=(2,3,4) (p1,p2,p3)=(1,2,5) and knapsack capacity=6. Generate the set S_i using dynamic programming.

OR

7. Construct an OBST for the following data n=4, (a1,a2,a3,a4)=(do ,if ,int, while),p(1:4)=(3,3,1,1) and Q(0:4)=(2,3,1,1,1).

8. Explain in detail how the technique of backtracking can be applied to solve the 8-Queens problem with an example.

OR

9. Solve TSPP having the following cost-matrix using Branch and Bound technique.

	A	B	C	D
A	×	5	2	3
B	4	×	1	5
C	4	2	×	3
D	7	6	8	×

10. Explain Differences between Decision and Optimization Problem.

OR

11. Write about Graph coloring Problem and subset of sum problem. Are they NP Problems. If Yes, justify your answer to include them into NP Problems.

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PART-A

1. a) Define space complexity with example. [2m]

b) Write the difference of Big-oh and Little-oh Notation. [3m]

c) Write the time complexity for the Minnimum cost spanning tree. [2m]

d) What are the applications of Divide and Conquer [3m]

e) What is the time complexity of Multi stage graphs. [2m]

f) Write the control abstraction for Dynamic Programming. [3m]

g) Write the general method for Backtracking. [2m]

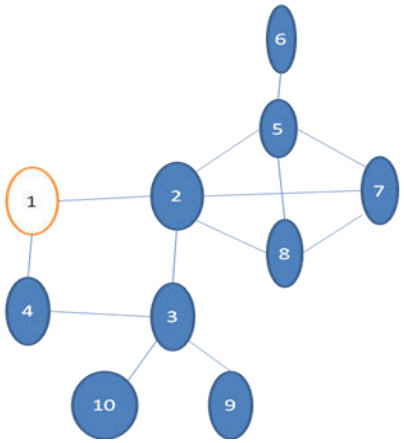
h).Write the difference between LIFO and FIFO [3m]

i) Define P and NP? [2m]

j). What is Deterministic Algorithm. [3m]

PART-B

2. Define an Articulation point in a graph. Write algorithm for find articulation point and its time complexity? Find articulation point for the given graph.



OR

3. Apply Quick sort algorithm to sort the List E, X, A, M, P, L, E in alphabetical order and write its algorithm.

4. Consider the problem of Scheduling 'n' jobs of know durations t1,t2---tn for execution by a single processor. The jobs can be at a time. You want to find a schedule that minimizes the total time spent by all jobs in the system.

i) Design a Greedy Algorithm for this Problem.

ii) Does the Greedy Algorithm always yield an Optimal Solution.

OR

5. Find an Optimal Solution to the Job Sequencing Problem instance n=5, deadlines and profits as (d1—d4)=(2,2,1,3,3) and (p1-----p4)=(20,15,10,5,1).

6. Using dynamic programming method, find the maximum no.of operation possible for the following chain matrix multiplication and also the sequence of multiplications that will require this maximum no. of operations A(20,30) * B(30,5) * C(5,12),* D(12,5)

OR

7. Write an Algorithm to solve 0/1 Knapsack Problem using Dynamic Programming.

8. Let W=(5,10,10,25) and m=25. Find all possible subsets of W that sum to M using fixed tuple and variable tuple length.

OR

9. Write an Algorithm for a FIFO Branch and Bound search for a LeastCost answer node.

10. Describe some Classic NP Problems and why they are important.

OR

11. Write about Tractable and Intractable Problems.

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PART-A

1. a) Explain the fundamental operation 'FIND'. [2m]
b) Write General Method for Divide and Conquer. [3m]
c) Define Amortized complexity. [2m]
d) What is SSSPP and write its time complexity. [3m]
e) What are the applications of Dynamic Programming. [2m]
f)Define Principle of Optimality with an example. [3m]
g) How Row is Minimized in below matrix in TSPP. [2m]

5	4	3	2	1
6	1	8	9	0
15	10	20	8	6

h).What is time complexity for the sum of subsets [3m]
i) Define Cook's Theorem. [2m]
j). Write applications for NP-Hard and NP-Complete. [3m]

PART-B

2. What is the value returned by each of the following functions? Express your answer as functions of n. Also, state the worst-case running times in big-O notation.

(a) Function mystery(n)
i) r:=0;
ii) for i:=1 to n-1 do
iii) for j:=i+1 to n do
iv) for k:=1 to j do
v) r:=r=1;
vi) return(r)

(b) Function pensy(n)
i) r:=0; for i:=1 to n-1 do
ii) for j:=1 to I do
iii)for k:=j to i=j do
iv)r:=r+1;
v) return(r);

OR

3).Explain set representation using trees and develop algorithms for UNION and FIND using weighing and collapsing rules.

4. Explain the problem of SSSP and write its algorithm using greedy approach. P.T its works with a numerical example.

OR

5. a). P.T if the weights on the edges of a connected undirected graph are distinct then there is a unique minimum spanning tree.

b). Explain the general characteristics of greedy method.

6. a). Give the difference between greedy method and dynamic programming.

b). Define Merging and Purging rules in 0/1 Knapsack Problem.

OR

7. Using the TSPP algorithm, calculate the optimal tour.

0	20	30	10	11
15	0	16	4	2
3	5	0	2	4
19	6	18	0	3
16	4	7	16	0

8. a).Explain Hamiltonian cycle with an example.

b). Write an Algorithm for a FFIOBB search for a Leastcost answer node.

OR

9. Define following terms State space, Problem state, Solutionstates, answerstates,Livenodes,E-node,Deadnode.

10. Write a short notes on NP,NP-Hard and NP-Complete with examples.

OR

11. Explain CNF-Satisfiability Problem.

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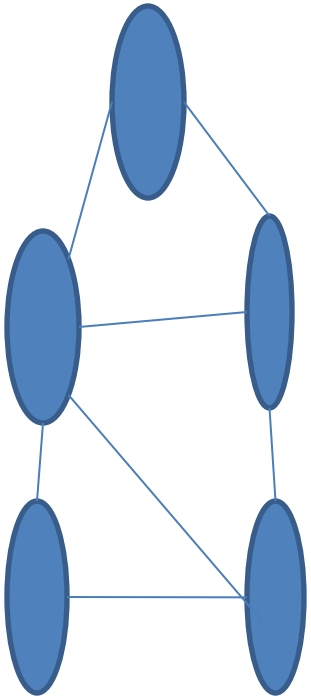

Code No: 09A51901 | R09 | SET-1

B. Tech III Year I Semester Examinations, May/June - 2012
DATABASE MANAGEMENT SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

1.a) Explain the levels of Abstraction in a DBMS.
b) With a neat diagram explain the architecture of a DBMS. [7+8]

2.a) What is meant by a weak entity set? Give one example.
b) Discuss various features of ER diagrams. Give suitable example. [7+8]

3. What is meant by relational algebra? State and explain fundamental operations of relational algebra. Give suitable example to each of them. [15]

4.a) Write the basic structure of SQL and explain where clause in SQL.
b) Discuss about comparison operators and NULL values in SQL. [7+8]

5.a) Compare the third normal form and fourth normal form. Give suitable example to each of them.
b) What are the problems caused by redundancy? Discuss how normal forms will remove redundancy. [7+8]

6.a) List and explain various transaction states.
b) What is meant by Serializability? Discuss about conflit Serializability. [7+8]

7. Discuss the need for recovery systems. Explain various advanced recovery systems. [15]

8. Write short notes on the following:
a) ISAM
b) Hash based indexing
c) Complex integrity constraints in SQL. [15]

--ooOoo--

Code No: 09A51901 | R09 | SET-2

B. Tech III Year I Semester Examinations, May/June - 2012
DATABASE MANAGEMENT SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

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1. Explain the difference between external, internal, and conceptual schemas. How are these different schema layers related to the concept of logical and physical data independence? [15]

2.a) Define the terms entities, attributes and entity sets. Discuss about ternary relationship set with an example.
b) Draw the E-R diagram for a hospital management system. [7+8]

3.a) Explain the set different operation and catesian – product operation in relational algebra.
b) Discuss with suitable examples the Natural – join operation and the division operation in relational algebra. [7+8]

4.a) Explain the complex integrity constraints in the SQL.
b) What is nested queries set? Explain its applications. [7+8]

5.a) What is meant by redundancy? What are the problems caused by redundancy?
b) Discuss about multivalued dependency and fourth normal form. [7+8]

6.a) Explain clearly with suitable example about conflict Serializability.
b) What is meant by recoverability? Discuss about recoverable schedules. [7+8]

7. Explain clearly the Log-Based recovery.

8. Write short notes on the following:
a) B^+ trees
b) Tree based indexing
c) Remote backup systems. [15]

--ooOoo--

Code No: 09A51901 | R09 | SET-3

B. Tech III Year I Semester Examinations, May/June - 2012
DATABASE MANAGEMENT SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

1.a) Discuss the advantages of DBMS. And discuss about data independence.
b) What is meant by DBA? What are the critical tasks that DBA is responsible. Explain them. [7+8]

2.a) What is meant by key constraints? Discuss the key constraints for ternary Relationships.
b) Discuss with an example about weak entity sets and aggregation. [7+8]

3.a) What is meant by tuple relational calculus? Compare it with relational algebra.
b) Discuss briefly about domain relational calculus. [7+8]

4.a) Explain with suitable examples the select clause and the from clause in SQL.
b) What are nested subqueries? Discuss their uses. [7+8]

5.a) Compare the first, second, and third normal forms.
b) Discuss about schema refinement database design. [7+8]

6.a) Compare the conflict Serializability and view Serializability.
b) List the ACID properties. Explain usefulness of each. [7+8]

7. Discuss about failure with loss of nonvolatile storage and remote backup systems. [15]

8. Write short notes on the following:
a) Hash based indexing
b) Multiple granularity
c) Dynamic index structures. [15]

--ooOoo--

Code No: 09A51901 | R09 | SET-4

B. Tech III Year I Semester Examinations, May/June - 2012
DATABASE MANAGEMENT SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

1.a) Explain the difference between logical and physical data independence. And also discuss the importance of logical data independence.
b) Discuss the role of storage manager and Query processor. [7+8]

2.a) Define the terms relationship and relationship set. Explain ternary relationship set with a suitable example.
b) Construct an E-R diagram for a school information system. [7+8]

3.a) Compare the Domain relational calculus.
b) What is the need for enforing integrity constants over relations? Discuss division operation in relational algebra. [7+8]

4.a) Discuss about triggers and active databases.
b) Explain about comparison operators and aggregative operators in the SQL. [7+8]

5. What is meant by lossless join decomposition? Discuss about dependency preserving decomposition and multivalues dependency. [15]

6.a) Explain the distinction between the terms 'serial schedule' and 'serializable schedule'.
b) Discuss how to implement atomicity and durability in transactions. [7+8]

7.a) Discuss about advanced recovery systems.
b) Explain with suitable example the B^+ trees and its applications. [7+8]

8. Write short notes on the following:
a) Log based recovery
b) Validation based protocols
c) Fourth normal form. [15]

--ooOoo--

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DATA BASE MANAGEMENT SCIENCE
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Time: 3 hours **Max Marks: 75**

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Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

1. (a) Explain the three levels of data abstraction.
   (b) What are the responsibilities of a DBA?
   (C) Explain the set operations in relation algebra?
   (d) Briefly explain about nested queries & correlated nested queries?
   (e)Explain the properties of decomposition?
   (f) Explain about file organization?
   (g) Write short notes on (i) WAL protocol (ii) Check pointing.
   (h) Explain the FD's and MVD with example?
   (i) Explain about time stamp based protocol?
   (h) What are the transaction properties and states?

PART-B

2. How to specify different constraints in ER diagram? Give examples?

OR

3. Describe storage manager component of database system structure?
4. What are the aggregate and comparison operators in sql? Explain With an example in detail

OR

5. Explain about relational Algebra and Relational calculus? With Examples
6. Define 1NF, 2NF, 3NF, BCNF, what is the motivation for putting a relation in BCNF? What is the motivation for 3NF?

OR

7. a)Compare the third normal form and fourth normal form. Give suitable example to each of them.
   b) What are the problems caused by redundancy? Discuss how normal forms will remove redundancy.
8. What is meant by transaction state? Discuss about Timestamp based Protocols?

OR

9. Discuss the need for recovery systems. Explain various advanced recovery systems
10. Explain all operations of B+ tree for indexing with suitable examples?

OR

11. Explain about tree structured indexing?

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PART-A

1. (a) Discuss the Query Processor of Database system structure
   (b) What is a data model? Explain the relational data model
   (C) Explain the GROUP BY and HAVING clauses
   (d) Explain new insertion, deletion and updating of database is performed in the relational algebra.
   (e) What is normalization? Discuss the 1NF, 2NF with examples?
   (f) Explain about file organization?
   (g) Write short notes on (i) WAL protocol (ii) Check pointing.
   (h) Explain the FD's and MVD with example?
   (i) Explain the concept of transaction atomicity.
   (h) Write short notes on i. Serialazability ii. Recoverability

PART-B

2. a)Explain the difference between external, internal, and conceptual schemas. How are these different Schema layers related to the concept of logical and physical data independence
   b) Draw the E-R diagram for a hospital management system.

OR

3. a) What is meant by key constraints? Discuss the key constraints for ternary Relationships.
   b) Discuss with an example about weak entity sets and aggregation.
   c) What is meant by DBA? What are the critical tasks that DBA is responsible explain them
4. a)Explain with suitable examples the select clause and the from clause in SQL.
   b) What are nested sub queries? Discuss their uses

. OR

5. a) What is meant by tuple relational calculus? Compare it with relational algebra.
   b) Discuss briefly about domain relational calculus.
6. a) Compare the first, second, and third normal forms.
   b) Discuss about schema refinement database design.

OR

7. What is meant by lossless join decomposition? Discuss about dependency preserving decomposition and multivalue dependency..
8. a)Explain the distinction between the terms 'serial schedule' and 'serializable schedule'.
   b) Discuss how to implement atomicity and durability in transactions.

OR

9. a) Discuss about advanced recovery systems.
   b) Explain with suitable example the B+ trees and its applications.
10. Explain all operations of B+ tree for indexing with suitable examples?

OR

11. Explain about ISAM,hash based indexing?

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PART-A

1. (a) Write about the different types of attributes
(b) Explain i. DDL ii. DML
(C) What is a relational database query? Explain with an example
(d) What are the SQL constructs to modify the structure of tables, views?
(e) Explain 3nf? Give one example?
(f) Explain about file organization?
(g) How does the two phase locking protocol ensures Serialazability.
(h) Explain the FD's and MVD with example?
(i) Explain about commit and roll back operations.
(h) What are the roles of Analysis, Redo and Undo phases in ARIES?

PART-B

2. a)Briefly explain about database languages, data base models?
b) Draw the E-R diagram for library management system.

OR

3. a) What is meant by key constraints? Discuss the key constraints for ternary Relationships.
b) Discuss with an example about weak entity sets and aggregation.
c) how to specify different constraints in ER diagram?
4. a)Explain with suitable examples the select clause and the from clause in SQL.
b) What are the aggregate and comparison operators in SQL?Explain with example?

. OR

5. a) What is meant by tuple relational calculus? Compare it with relational algebra.
b) Discuss briefly about domain relational calculus.
6. a) Compare the first, second, and third normal forms.
b) Discuss about schema refinement database design.

OR

7. Discuss about 1NF, 2NF, 3NF and BCNF in schema refinement.
8. a)Explain the distinction between the terms 'serial schedule' and 'serializable schedule'.
b) Discuss how to implement atomicity and durability in transactions.

OR

9. (a)Discuss shadow paged recovery technique.
(b) Compare and contrast between shadow paged recovery and log based recovery.
10. Explain all operations of B+ tree for indexing with suitable examples?

OR

11. (a) Give a detailed analysis of Indexed Sequential Access Method (ISAM) data structure.
(b) Discuss the main differences between ISAM and B+ tree indexes.

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Code No: XXXXX **R 13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B.Tech II Year II Semester Examinations
DATA BASE MANAGEMENT SCIENCE
(Common to Computer Science and IT)

Time: 3 hours **Max Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

1. (a) What is a Data model ? List the important data models
   (b) Explain in detail the differences between Database Systems and File Systems
   (C) Explain the difference between a weak and a strong entity-set
   (d) What are the differences between the two types of relational calculus?
   (e) Explain the properties of decomposition?
   (f) Explain the properties of transaction?
   (g) Explain the concept of log based recovery.
   (h) Explain about Buffer Manager.
   (i) Explain about commit and roll back operations.
   (h) What are the roles of Analysis, Redo and Undo phases in ARIES?

PART-B

2. (a) Discuss the structure of a database system.
   (b) Describe how to translate an ER diagram into a relational database schema..

OR

3. a) What is meant by key constraints? Discuss the key constraints for ternary Relationships.
   b) Discuss with an example about weak entity sets and aggregation.
   c) how to specify different constraints in ER diagram?
4. a)Explain with suitable examples the select clause and the from clause in SQL.
   b) What are the aggregate and comparison operators in SQL?Explain with example?

. OR

5. a) What is meant by tuple relational calculus? Compare it with relational algebra.
   b) Discuss briefly about domain relational calculus.
6. a) Compare the first, second, and third normal forms.
   b) Discuss about schema refinement database design.

OR

7. Discuss about 1NF, 2NF, 3NF and BCNF in schema refinement.
8. a)Explain the distinction between the terms 'serial schedule' and 'serializable schedule'.
   b) Discuss how to implement atomicity and durability in transactions.

OR

9. (a) Discuss shadow paged recovery technique. In what ways this is different from log based recovery?
   (b) Explain about the transaction states? Implementation of Atomicity and durability?
10. a) Explain about the file organization and indexing?
    b)Discuss about tree based indexing?
11. (a) Give a detailed analysis of Indexed Sequential Access Method (ISAM) data structure.
    (b) Discuss the main differences between ISAM and B+ tree indexes.

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MALLAREDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

B.TECH II YEAR II SEMESTER EXAMINATIONS 2014-15

DATA COMMUNICATIONS

MODEL PAPER I **MAX MARKS: 75**

Part-A

Answer all the questions.

1. a) describe a peer to data communications network.
   b) What is M- ary encoding? List the advantages.
   c) describe the metallic transmission line equivalent circuit.
   d) what are the different categories of transmission media?
   e) define private line circuit.
   f) define crosstalk.
   g) list out the specifications of IS-95
   h) Explain the different types of error detection methods used in data communications.
   i) what is modem synchronization.
   j) explain difference between bits per second and baud.

Part-B

2. a) Describe the architecture and functions of 7 layer OSI model.

b) Differentiate between baud and bit rate. What are the conditions under which both of them become same?

Or

3. Describe AM, FM & PM techniques in detail.

4. What is multiplexing? what are the advantages of multiplexing? Compare TDMA & FDMA.

Or

5. Explain the characteristics of metallic transmission lines and compare various types of metallic transmission lines.

6. a) Describe the basic functions of a standard telephone set.

b) Explain working of a local subscriber loop.

c) What are the various steps involved in completing a local telephone cal.

Or

7. a) Explain the caller ID service give its ringing cycle and frame formate.

b) Describe telephone call procedures.

8. a) What are cyclic codes? Discuss how cyclic codes can be used for error detection?

b) Determine the BCC for $G(x)=x^8+x^5+x^2+x^0$ and $P(x)= x^5+x^4+x^1+x^0$.

Or

9. a) Give GSM system architecture and explain.

b) What are the advantages of digital cellular telephone over analog cellular telephone system.

10. a) Write a short note on (i) voice band data communication modems (ii) Synchronous and asynchronous voice band modems.

b) what are the classifications of voice band modem

Or

11.a) define modem synchronization and list its functions

b) what are scrambler and descrambler ckts.

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DEPARTMENT OF INFORMATION TECHNOLOGY

B.TECH II YEAR II SEMESTER EXAMINATIONS 2014-15

DATA COMMUNICATIONS

MODEL PAPER II **MAX MARKS: 75**

Part-A

1. a) define frequency spectrum and signal to noise ratio.
   b) define protocol, connection oriented protocol and connectionless protocol.
   c) how you define wireless communication system?
   d) what is packet switching?
   e) define coupling crosstalk.
   f) what is the difference between intelligible and unintelligible crosstalk.
   g) What are the advantages and disadvantages of personal communication satellite system.
   h) Describe the following (i) exact count encoding (ii) echoplex
   i)what is the purpose of a digital service unit.
   j)what is meant by the term bis and terbo.

Part-B

2. a) What are the various network models? Explain.
   b) For an 8 PSK system operating at an information rate of 36kbps. Determine baud, minimum bandwidth and bandwidth efficiency.

Or

3. a) Briefly describe the importance of Shannon limit for information capacity.
   b) Explain the following (i) peer to peer client/ server model. (ii) client server model.
4. What is statistical TDM? Explain in what way it is advantages as compare to standard TDM system.

Or

5. differentiate guided and unguided transmission media. Explain in detail the various types of guided transmission media.
6. a) Briefly describe what happens when a telephone set is taken off hook.
   b) Describe what is meant by a two wire circuit and a four wire circuit.

Or

7. a) Explain the operation of cordless telephone system.
   b) How do you classify transmission parameters? Explain.
8. a) What is frequency reuse? How it helps in increasing the channel capacity?
   b) What is the difference between a soft and a hard handoff?
   c) Draw the GSM system architecture and discuss.

Or

9. a)What is the difference between error detection and error correction? And explain.
   b) Describe how vertical redundancy checking accomplishes error detection.
10. a) explain the difference between the terms probability of error and bit error rate.
    b) what is difference between asynchronous and synchronous modem.

Or

11. a) describe AT command set.
    b) describe the differences between cable modems and standard voice band modems.

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DEPARTMENT OF INFORMATION TECHNOLOGY

B.TECH II YEAR II SEMESTER EXAMINATIONS 2014-15

DATA COMMUNICATIONS

MODEL PAPER III **MAX MARKS: 75**

Part-A

1. a) List out various standard organizations of data communications.
   b) Describe the differences between digital modulation and digital transmission
   c)what are the typical broad band LANs?
   d)what is message switching?
   e)what is the difference between dB and dBm.
   f)what is the purpose of dial tone.
   g) describe character synchronization and redundancy.
   h) Explain vertical redundancy checking with an example.
   i)what are the two classifications of voice band modems?
   j) what is modem synchronization.

Part-B

2. a) Determine the minimum band width, baud rate and band width efficiency for the following bit rates and modulation schemes QPSK &16-QAM (i) f_b=3600bps (ii) 9600bps
   b) What are the advantages of layered network architecture?

Or

3. a)Explain the following terms (i) protocol(ii) Peer to peer data communication (iii) serial and parallel data communication (iv) encapsulation and de encapsulation.

4 .what are the advantages and disadvantages of fiber optic cables?

Or

5. what is TDM? Describe synchronous TDM and Statistical TDM mechanisms.

6. a) Explain the caller ID service give its ringing cycle and frame formate.

b) Describe telephone call procedures.

Or

7. a) Explain the operation of telephone set with the help of functional block diagram.
   b) what are the common units for signal and noise power measurements in the telephone industry.

8.a) Give the north American digital cellular TDMA frame format and explain?
   b) What are the various GSM services.

Or

9. a)Describe the classifications of AMPS cellular telephones.
   b) Explain the hamming code with an example.

10. a) describe the basic function of channel service unit.

b) what is meant by the terms data terminal equipment and data communications equipment.

Or

11. list and describe basic blocks of voice band modem in detail.

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MALLAREDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

B.TECH II YEAR II SEMESTER EXAMINATIONS 2014-15

DATA COMMUNICATIONS

MODEL PAPER IV **MAX MARKS: 75**

Part-A

1. a) describe the differences between time domain and frequency domail.
   b) What are the various factors involved in designing computer network ?
   c) what is statistical TDM?
   d) what are the different propagation mode for fiber optic cables?
   e) define local subscriber loop.
   f) what is the purpose of RJ-11 connector?
   g) give the formats of various types of barcodes.
   h) What are the four types of handoffs possible with N-AMPS.
   i) what is the functionality of modem equalizer?
   j) what is the functionality of a digital service unit

Part-B

2. a) What are the data communication standards and why are they needed?
   b) Describe AM, FM & PM techniques.

Or

3. a) Define protocol? Distinguish between connection oriented and connection less protocol
   b) What is network topology? Describe various types of network topologies.

4. describe optical fiber communications system with neat block diagram.

Or

5. what is meant by term switching? Comparison of circuit switching, packet switching and message switching

6. a) what is the difference between intelligible and unintelligible crosstalk.
   b) Describe various types of crosstalk.

Or

7. Discuss the following signalling messages : alerting, supervising, controlling and addressing. What is the purpose of dial tone, when it is applied to a telephone circuit.

8. a) Describe the concepts of personal communication system.
   b) Explain the operation of N-AMPS cellular telephone systems.

Or

9. Discuss the features of LRC, VRC, checksum & CRC error detection techniques.

10. describe digital service unit and channel service unit with block diagrams.

Or

11. explain modem synchronization in detail.

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DEPARTMENT OF INFORMATION TECHNOLOGY

B.TECH II YEAR II SEMESTER EXAMINATIONS 2014-15

DATA COMMUNICATIONS

MODEL PAPER V **MAX MARKS: 75**

Part-A

1. a) Define frequency spectrum and band width efficiency.
   b) What are the transmission modes of a data communication system? Explain them.
   c) what is single mode and multimode propagation?
   d) what is circuit switching?
   e) define call progress tones and signals.
   f) briefly describe a local subscriber loop.
   g) Compare first generation cellular telephone system with second generation.
   h) Explain (i) morse code (ii) baudot code (iii) ASCII code.
   i) what is the difference between probability of error and bit error rate?
   j) what is the difference between synchronous and asynchronous voice band modems?

Part-B

2. a) Explain network components, functions and features.
b) describe the alternate protocol suite

Or

3. a) Briefly describe the importance of Shannon limit for information capacity.
   b) Explain the following (i) peer to peer client/ server model. (ii) client server model.
4. what is multiplexer? explain the different multiplexing techniques.

Or

5. a) what are the different types of optical sources and compare them.
b) describe satellite communication system with diagram.
6.a) Explain in detail about the paging systems and their functions.
   b) Describe the differences between operation of a cordless telephone and a standard telephone.

Or

7. Describe the basic operation of a cordless telephone and explain how is differ from a standard telephone.
8. Describe the features of IS-54, IS-95 & IS-136 and compare them.

Or

9. a) Explain the term retransmission and forward error correction.
   b) Describe error correction procedure in hamming codes.
10. Describe AT command set.

Or

11. list and describe the basic building blocks of synchronous voice band modem.

II B.TECH I SEMESTER COMPUTER SCIENCE AND ENGINEERING
ENVIRONMENTAL STUDIES (R13)
MODEL PAPER – I
MAXIMUM MARKS: 75

PART A **Max Marks: 25**

I) All questions in this section are compulsory
II) Answer in TWO to FOUR sentences.

1. Comment on biogeochemical cycle (2M)
2. Write short notes on ecological pyramids (3M)
3. Write short notes on A) Floods B) Droughts (2M)
4. What are renewable and non –renewable resources with examples (3M)
5. Comment and discuss about threats of bio-diversity (2M)
6. Explain conservation of Bio-diversity in short (3M)
7. Write short notes on a) Ozone depletion b) E-water (2M)
8. International convention / Protocol. (3M)
9. Ecological food print (2M)
10. Wild life act. (3M)

PART B **Max Marks: 50**

i. Answer only one question among the two questions in choice.
ii. Each question answer (irrespective of the bits) carries (10M).

11. 11. Explain the classification of ecosystems in detail with neat diagram (10 M)

(OR)

12. 12. Describe the structural and functional components of an ecosystem with neat labeled diagram. (10M)

. (OR)

13. Comment and discuss on the environmental effects of extracting and using mineral resources (10 M)

14. Explain about systematic approach for study of soil and ground water environment impacts. (10 M)

15. Comment on the value of Biodiversity. (10 M)

(OR)

16. Explain about the Natioral Biodiversity Act. (10 M)

17. Explain about Montreal Protocol. (10 M)

(OR)

18. How human activity has resulted in increased emissions of green house gases? (10 M)

19. What are the responsibilities of state pollution control boards under hazardous waste rule? (10 M)

(OR)

20. Give the list of environment EIA methods (10 M)

II B.TECH I SEMESTER – COMPUTER SCIENCE AND ENGINEERING
ENVIRONMENTAL STUDIES (R13)
MODEL PAPER – II
MAXIMUM MARKS: 75

PART A **Max Marks: 25**

I) All questions in this section are compulsory
II) Answer in TWO to FOUR sentences.

1. Define ecosystem and its importance. (2M)
2. Differentiate bioaccumulation and biomagnifications (3M)
3. Explain deforestation and its effects. (2M)
4. Explain how man induced landslide occur (3M)
5. List the different types of Biodiversity. (2M)
6. Comment a Man-wild life conflicts. (3M)
7. Explain concept of bioremediation. (2M)
8. Write short notes on climate change. (3M)
9. What is ecological foot print? (2M)
10. What is meant by sustainable development? (3M)

PART B **Max Marks: 50**

III) Answer only one question among the two questions in choice.
IV) Each question answer (irrespective of the bits) carries. 10M

11. Explain ecological pyramids with diagrams. (10M)

OR

12. Explain about nutrient cycles in ecosystem. (10M)

13. What environmental and economic problems could result from a rapid transition from fossil fuels to a alternative sources. (10M)

OR

14. Explain about living and non-living natural resources. (10M)

15. Explain how the poaching of wild life can act as threat of biodiversity. (10M)

OR

16. Define and explain the hotspots of Biodiversity. (10M)

17. What energy any measure can the central / state pollution boards take under the water act in case of pollution of stream as will? (10M)

OR

18. What are the pollutants emitted from automobiles and industrial pollution? (10M)

19. Explain biomedical waste management & handling rules. (10M)

OR

20. Explain the concepts and advantages of green building. (10M)

III B.TECH I SEMESTER – COMPUTER SCIENCE AND ENGINEERING
ENVIRONMENTAL STUDIES (R13)
MODEL PAPER – III
MAXIMUM MARKS: 75

PART A **Max Marks: 25**

I) All questions in this section are compulsory
II) Answer in TWO to FOUR sentences.

1. Define carrying capacity and its importance. (2M)
2. what are the structural components of an ecosystem (3M)
3. What are non renewable resources and its effects? (2M)
4. What is meant by surface and ground water (3M)
5. What is National Biodiversity Act? (2M)
6. Comment on hotspots of biodiversity. (3M)
7. What is municipal solid waste? (2M)
8. Write short notes on ozone depletion (3M)
9. What is low carbon life cycle? (2M)
10. What is meant by green building (3M)

PART B **Max Marks: 50**

III) Answer only one question among the two questions in choice.
IV) Each question answer (irrespective of the bits) carries. 10M

11. Explain classification of ecosystem with diagrams. (10M)

OR

12. Explain about function of an ecosystem in detail. (10M)

13. How does the modern agricultural system cause degradation of soil? (10M)

OR

14. Explain about mineral resources. (10M)

15. Explain the value and threat to biodiversity (10M)

OR

16. Define and explain conservation of Biodiversity (10M)

17. What are the point and non point sources of water and the different treatment methods (10M)

OR

18. How can contaminated soil be treated using biological methods? (10M)

19. Explain the concepts and advantages of EIA and EMP (10M)

OR

20. What are biomedical and hazardous waste handling rules (10M)

II B.TECH I SEMESTER – COMPUTER SCIENCE AND ENGINEERING
ENVIRONMENTAL STUDIES (R13)
MODEL PAPER – IV
MAXIMUM MARKS: 75

PART A **Max Marks: 25**

Write Short notes on:

1. i).Biomagnifications (2m)
   ii).Ecosystem valves (3m)
   iii).Renewable resources (2m)
   iv).Land resources (3m)
   v).Productive use of biodiversity (2m)
   vi).Man –wildlife conflict (3m)
   vii).Montreal protocol (2m)
   viii).Hazards due to noise pollution (3m)
   xi).Low carbon lifestyle (2m)
   x).Wildlife act (3m)

Essay answer questions (each carries 10 marks)

1. a) Discuss about the strategies for sustainable development.
   Or
   b) Explain about the draft and final environmental statements.

2. a) How human activities have resulted in increased emissions of green house gases?
   Or
   b) Describe about the process of ozone layer depletion.

3. a) Write about various methods for conservation of biodiversity.
   Or
   b) "India is one of the richest biodiversity countries" Give your comment supporting this statement.

4. a) Discuss about the negative impacts of mining activities.
   Or
   b) Describe about the impacts of deforestation.

5. a) Write about the biogeochemical cycles.
   b) Describe about the aquatic ecosystems with proper diagrams.

II B.TECH I SEMESTER – COMPUTER SCIENCE AND ENGINEERING

ENVIRONMENTAL STUDIES (R13)
MODEL PAPER – V
MAXIMUM MARKS: 75

PART A **Max Marks: 25**

Short answer questions:

1.i).Difference between habitat and niche.	(2m)
ii).Living and non-living natural resources.	(3m)
iii).Mineral resources	(2m)
iv).Salt water intrusion	(3m)
v).Optional valves	(2m)
vi).Habitat fragmentation	(3m)
vii).Desertification	(2m)
viii).Soil degradation	(3m)
xi).Baseline data acquisition	(2m)
x).Urban sprawl	(3m)

Essay answer questions (each carries 10 marks)

1. What is an anthropogenic green house gas? Discuss the various anthropogenic green house gases in terms of their potential to cause global warming?
   Or
   Discuss about the wastewater treatment methods.

2. Write about biomedical waste management and handling rules.
   Or
   Discuss about the green buildings and their advantages.

3. What are the valves of biodiversity?
   Or
   Write about the advantages and drawbacks of both in-situ and ex-situ conservation methods.

4. "Building large dams is a threat to nature." Comment. Then what are the alternatives available?
   Or
   In detail explain about the energy resources.

5. Write about the terrestrial ecosystems with examples.
   Or
   With neat diagrams discuss about the ecological pyramids.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Java Programming

Model Paper – R13

II CSE II Semester

Duration: 3hrs **Max Marks: 75**

Answer all the following

PART-A **(Marks 25)**

1. (a) What are the properties of object oriented programming?
   (b)what is method overriding?
   (c)Define an Exception.What is meant by Exception Handling?
   (d)List some of the classes available in collection?
   (e)List the compponents of Swing?
   (f)Discuss briefly about streams.
   (g)What is inheritance?
   (h)What is thraed priority?
   (i)What are the steps involved in connecting the database?
   (j)What is an event?

Answer all the questions either (a) or (b)

PART – B **(Marks: 5*10=50)**

2. (a)Discuss in detail about inheritance. Also write its benefits.

   (OR)

   (b)Describe about Type conversion. Also explain how casting is used to perform type conversion between incompatible types.
3. (a) What is inheritance ? Explain different types of inheritance.

   (OR)

   (b) How a method can be overridden? Explain.
4. (a) Give the class hierarchy in Java related to exception handling. Briefly explain each class.

   (OR)

   (b)What is a thread? Explain the states of a thread with an example.
5. (a) Explain in detail about collection interfaces.

   (OR)

   (b) Explain in details about primary input and output operations.
6. (a) Explain in detail about the classification of swing components.

   (OR)

   (b)Explain in brief about events and event sources.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Java Programming

Model Paper –2 (R13)

II CSE II Semester

Duration: 3hrs **Max Marks: 75**

Answer all the following

PART-A **(Marks 25)**

1 (a) Discuss briefly about recursion.
(b) Define package
(c) Differences between multi tasking and multi threading.
(d) Discuss briefly about hash table class.
(e) Explain in brief about layout manager.
(f) What is an operator? list various tupes.
(g) List different types of access specifies.
(h) List the keywords used to handle exceptions.
(i) Define character streams.
(j) Define Applet.

PART – B **(Marks:5*10=50)**

Answer all the questions (Either (a) or (b))

2 (a)What is constraint explain the constant types with examples.

(OR)

(b)What is a method ?How a method is used in the class? Explain.

3 (a) Explain the usage of Abstract classes and methods.

(OR)

(b)Discuss how inheritances are defined and implemented.

4 (a)What is multithreading? Explain.

(OR)

(b)What is synchronization? Explain with suitable example.

5 (a)Write short notes on the following collection framework classes.

1) Random 2) Scanner

(OR)

(b)Write a short notes on

1) Connection interface
2)Statement object
3)Inner join
4)Execute Query Method.

6 (a)Write a simple awing application in java.

(OR)

(b)Write the difference between applets and applications.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Java Programming

Model Paper –3 (R13)

II CSE II Semester

Duration: 3hrs **Max Marks: 75**

Answer all the following

PART-A **(Marks 25)**

1. (a) List the data typed]s present in java.
   (b)Explain in brief about interfaces.
   (c)What is meant by checked exception and unchecked exception.
   (d)How statements call can be used? Also list the types of methods in statement class.
   (e)Discuss about Jframe and Jpanel.
   (f)Discuss briefly about enumerated data types.
   (g)what is CLASSPATH.
   (h)What is multithreading?
   (i)List the types of JDBC drivers present in java.
   (j)What are event sources?

PART – B **(Marks:5*10=50)**

Answer all the questions (Either (a) or (b))

1. (a)List the primitive data types of java. Explain each of them in detail.

   (OR)

   (b)What are the different types of array? List out the advantages of using arrays?
2. (a)Write in detail about super class and subclasses.

   (OR)

   (b)Write the differences between interfaces and abstract.
3. (a)How are finally statements used in java? Explain in detail.

   (OR)

   (b)Is it possible to interrupt a thread? Explain.
4. (a) Explain inn detail about hash table class.

   (OR)

   (b) Explain in detail about the types of drivers in JDBC.
5. (a) Discuss in detail about swing components.

   (OR)

   (b)Explain about various event classes.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Java Programming

Model Paper –4 (R13)

II CSE II Semester

Duration: 3hrs **Max Marks: 75**

Answer all the following

PART-A **(Marks 25)**

1. (a) What are the OOPs features?
   (b) Compare Procedural and OOP Languages?.
   (c) Explain about control statements in java?.
   (d) Explain about method overloading with example?
   (e) Explain about the usage of super keyword with an example?
   (f) Explain how interfaces are implemented with an example?.
   (g) Explain the following: try, catch, throw, throws, finally
   (h) Explain the creation of threads with an example?
   (i)List the types of JDBC drivers present in java.
   (j)What are event sources.and Explain the life cycle of an applet?

PART – B **(Marks:5*10=50)**

Answer all the questions (Either (a) or (b))

2. (a) What is type casting and conversion? When it is required?
   (b). What is an array? How arrays are declared in javawith an example?

(OR)

   (c) Explain about method overloading with example? Explain about constructor overloading with example?

3 (a) What is method overriding? How methods overriding is achieved in Java, with an example?.

(OR)

   (b) How multiple inheritances are achieved in java with the interfaces? Explain with an example?

4 (a) What are the checked Exceptions and Unchecked Exceptions? Explain some of these exceptions with an example and also give the difference between them.

(OR)

   (b) How the priorities can be assigned to threads? Explain with example?

5 (a) Explain the difference between: i) Vector and Array List. ii) Enumeration and Iterator.

(OR)

   (b)Explain in deatil about the types of drivers in JDBC.

6 (a) Define event. Give examples of events. Define event handler. How it handles events?

(OR)

   (b) Explain about layout manager? With an example?.

Code No: XXXXX **R 13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech II Year II Semester Examinations

Principles of Programming Languages

(Common to Computer Science and IT)

Time: 3 hours **Max Marks: 75**

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

1. a) explain **Object Oriented, functional Programming** [2m]

b) Define **axiomatic semantics** [3m]

c) explain **Object Oriented, functional Programming** [2m]

d) explain **strong typing** [3m]

e) What is **variable initialization.** [2m]

f) explain **guarded commands .** [3m]

g) Define **Abstractions** [2m]

h) Define **encapsulation** [3m]

i) Explain **Separate Compilation** [2m]

j) Explain **Module Library** [3m]

PART-B

2. a) Explain the areas of computer applications and their associated languages.

b) Draw and explain the layered interface of virtual computers provided by a typical computer system.

OR

3. a) Explain the syntax graph and EBNF descriptions of the Ada if statement.

b)Explain the attribute grammer and also write the attribute grammer for simple assignment statements

4. a) What is the general problem with static scoping.

b) Distinguish between explain and implicit heap dynamic variables.

c) Differentiate between Ada derived type and an Ada subtype. Give examples.

OR

5. a) How does C support relational and boolean expressions?

b) Explain the problems with unconditional branching.

c) Differentiate the for statement between the C, C++ and Java.

6. Explain the generic functions in C++ with examples.

OR

7 Explain the design issues of subprograms and operations.

8. a) Explain the abstract data types in C++.

b) Explain about the concurrency in Ada 95

OR

9. a) Explain how exceptions are handled in Ada.

b) What is the relationship between resolution and unification in prolog?

c) What are the applications of logic programming?

10. Explain about the LISP, ML.

OR

11. Compare the functional programming languages with imperative languages.

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PART-A

1. a) Define Compilation [2m]
b) Define language generator [3m]
c) explain BNF and EBNF [2m]
d) Define Grammar? [3m]
e) What is denotational semantic [2m]
f) What is static scoping [3m]
g) Define Abstractions [2m]
h) Define encapsulation [3m]
i) Explain LISP [2m]
j) Explain ML [3m]

PART-B

2. a) Explain in detail about various language evaluation criteria&the characteristics that affect them?
b) Explain the process of compilation

OR

3. Distinguish between language generators and language recognizers.

4. What is the general problem with static scoping.

OR

5.Distinguish between explain and implicit heap dynamic variables.

6. Explain the generic functions in C++ with examples.

OR

7. Explain the design issues of subprograms and operations.

8.a) Explain the abstract data types in C++.
b) Explain about the concurrency in Ada 95. [15]

OR

9.a) Explain how exceptions are handled in Ada.
b) What is the relationship between resolution and unification in prolog?
c) What are the applications of logic programming?

10. Explain about the LISP, ML.

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PART-A

1. a) Define **ambiguous grammars** , [2m]

b) Define **attribute grammars** [3m]

c) explain **binding** [2m]

d) explain **type checking** [3m]

e) Define **Scope** [2m]

f) Define **lifetime of variable** [3m]

g) Define **semaphores** [2m]

h) Define **concurrency** [3m]

i) Explain **Procedural Abstraction** [2m]

j) Explain **Data Abstraction** [3m]

PART-B

2. Distinguish between general language generator and general language recognizer.

OR

3. a) Describe the basic concept of denotational semantics.

b) What is the difference between a sentence and a sentential form?

4. Distinguish between name type compatibility and structure type compatibility.

OR

5. Define static, fixed stack-dynamic, stack-dynamic, fixed heap-dynamic and heap-dynamic arrays.

6. What are the three semantic models of parameter passing?

OR

7 .Define shallow and deep binding for referencing environments of subprograms that have been passed as parameters

OR

8 .Explain the basic concepts of exception handling? What are the design issues for exception handling systems?

OR

9. Why were imperative features added to most dialects of LISP?

10. What are the language design issues for abstract data types?

OR

11 .What is a binary semaphore? What is a counting semaphore? What are the primary problems with using semaphores to provide synchronization?

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PART-A

1. a) Define Compilation& **Virtual Machines** [2m]

b) Explain **parse trees** [3m]

c)Define **record&union,** [2m]

d) Define **pointer** [3m]

e) **local referencing environments** [2m]

f) Define **sub-programs** [3m]

g) Explain **Java threads** [2m]

h Explain **C# threads** [3m]

i) Explain **Python – Values and Types** [2m]

j) Explain **Python –Variables** [3m]

PART-B

2 a) What is meant by programming paradigm? Explain various programming paradigms with examples.

b) Write BNF description for arithmetic expressions that implements the operator hierarchy of any imperative language.

OR

3. Discuss with an example operator precedence grammar

4 a) Briefly explain the specification and implementation aspects of the following data Types i) Boolean ii) Character

OR

5 What do you mean by dangling reference? Explain with an example

6 a) Discuss in detail the design issues for arithmetic expressions.

b) Define scope. Explain the static scope and dynamic scope with examples.

OR

7. Explain pass by result parameter passing technique in detail

8. Discuss how producer-consumer problem and Dining philosopher's problem are solved using concurrency in ADA.

OR

9. Discuss how exception handlers are helpful in C++ exception handling

10. Explain some of the important functions of LISP.

OR

11.Describe procedural abstraction in Python.

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