11978

No. of Printed Pages : 2

41424/D240

Reg. No.

IV Semester B.C.A.4 Degree Examination, May - 2019

DATABASE MANAGEMENT SYSTEM (Regular)

Theory

(RCU Fresh 2018-19)

Time : 3 Hours Max. Marks : 80

Instructions : (1) *All Sections are compulsory.*

(2) *Draw diagrams wherever necessary.*

SECTION - A

1. Answer **all 10** questions, **2** marks each. **10x2=20**

(a) What is Database Management System ?

(b) Define data model.

(c) What is tuple and attribute ?

(d) What is an Entity type ? Give an example.

(e) Give an example of primary key.

(f) What is domain integrity constraints ?

(g) What is Relational Algebra ?

(h) Define the term Normalization.

(i) What is SQL ? Write a syntax for UPDATE command.

(j) What is PL/SQL ? Write a basic structure of PL/SQL.

SECTION - B

Answer **any 4** questions 5 marks each. **4x5=20**

2. Describe the architecture of Three schema with a neat diagram.

3. Discuss the following attributes :

(i) Compositive attributes

(ii) Multivalued attributes

(iii) Simple attributes

P.T.O.

4. Describe the SELECT and PROJECT Operations of Relational Algebra.

5. What is Constraint ? Explain any 4 constraints with an example.

6. Write a PL/SQL program to find the greatest among three numbers.

SECTION - C

Answer **any 4** questions, **10** marks each. **4x10=40**

7. (a) Enlist the characteristics of database approach and explain all of them. **8+2**
   (b) Write any 2 advantages of using DBMS.

8. (a) Discuss the main activities of database end-users. **4+6**
   (b) Explain with example the operations UNION, INTERSECTION and MINUS of Relational algebra.

9. (a) Explain the 2nd Normal form with suitable example. **5+5**
   (b) Discuss the informal design guidelines of Relational Schemas.

10. (a) Write a PL/SQL program using for loop to insert even numbers between 1 to 10 into temp table. **5+5**
    (b) Give the syntax and examples for ALTER and DROP command.

11. Write **any 5** short notes on the following : **5x2=10**
    (i) Data and data state
    (ii) Schema
    (iii) DBA
    (iv) E-R diagram with an example
    (v) Functional dependency
    (vi) PL/SQL stored procedure

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11976

No. of Printed Pages : 2

41421/D210

Reg. No.

IV Semester B.C.A.4 Degree Examination, May - 2019

DESIGN AND ANALYSIS OF ALGORITHM

Theory

(Regular)

Time : 3 Hours Max. Marks : 80

Instructions : *(1)* ***All the three*** *Parts are* ***compulsory.***

(2) Draw diagram wherever necessary.

PART - A

1. Answer the following questions. **10x2=20**

(a) What are the three cases of problem to be tested while analysing algorithm ?

(b) What is debugging ?

(c) Define algorithm.

(d) Give the control abstraction for the Divide and Conquer (DAC) technique.

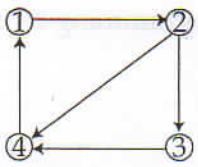
(e) State the pre condition for list of numbers, if binary search is to be carried out.

(f) Define feasible solution and optimal solution.

(g) What is Mean Retrieval Time (MRT) ?

(h) State the principle of optimality.

(i) State the indegree of vertex '2' and outdegree of vertex '4' in the diagraph.



(j) Define live node and dead node.

PART - B

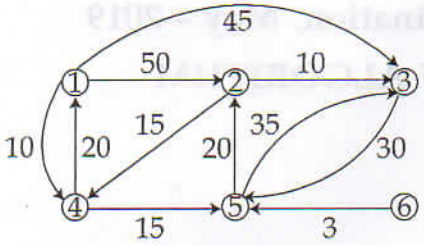
Answer **any four** questions. **4x5=20**

2. Discuss the four distinct areas of study while designing an algorithm.

3. Explain Strassen's matrix multiplication. How does it improve time complexity ?

P.T.O.

4. What is single source shortest path problem ? Find shortest path and its length from vertex '1' to all the destinations for the given graph.



5. Explain travelling sales person problem.

6. Draw a neat diagram of tree and explain various tree traversal method.

PART - C

Solve **any four** full questions. **4x10=40**

7. Mention the three ways of expressing an algorithm. Discuss various pseudocode convention used to specify an algorithm. **10**

8. (a) Write an algorithm for straight forward maximum and minimum. **5**
   (b) Explain Divide and Conquer strategy to solve a problem with neat diagram. **5**

9. (a) Find the optimal solution to the Knapsack instance n=3, m=20, (P_1, P_2, P_3) = (25, 24, 15) and (W_1, W_2, W_3) = (18, 15, 10) adopting Greedy technique. **5**
   (b) Discuss in brief, the concept of Optimal Storage on tapes with an example. **5**

10. (a) Distinguish between Divide and Conquer and Dynamic programming technique. **5**
    (b) Explain the criterias to judge an algorithm. **5**

11. Write short note on (**any two**) : **5+5**
    (a) Sorting Techniques
    (b) N - queen's problem
    (c) Sum of subset problem
    (d) Graph Search methods (BFS and DFS)

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No. of Printed Pages : 2

41422/D220

Reg. No. | | | | | | | | |

IV Semester B.C.A. 4 Degree Examination, May - 2019

ADVANCED COMPUTER NETWORK & SECURITY

Paper Theory

RCU Fresh 2018-19

Time : 3 Hours Max. Marks : 80

Instructions : *(1) All questions are* ***compulsory.***

(2) Draw neat diagrams wherever necessary.

SECTION - A

Answer **all** questions. **2x10=20**

1. (a) What are three criteria necessary for an effective and efficient network ?

(b) List different topology in network.

(c) How can routing be classified ?

(d) Define TCP.

(e) Define flow control.

(f) Write the functions of SNTP.

(g) Define www.

(h) What are the basic functions of email ?

(i) What do you mean by switched virtual circuit ?

(j) Write the keys for understanding distance vector routing.

P.T.O.

SECTION - B

Answer **any four** questions. 4x5=20

2. Explain SONET in detail.

3. Compare Virtual Circuit and Datagram.

4. Explain transport service primitives.

5. Explain UDP in detail.

6. Write a note on DNS.

SECTION - C

Answer **any four** complete question. 4x10=40

7. (a) Explain shortest path routing with neat diagram. 7+3=10

   (b) Explain IP Address.

8. (a) Explain Internet Protocol Version 6. 7+3=10

   (b) What do you mean by Virtual circuit ?

9. Explain TCP connection establish and connection release in detail. 10

10. (a) Explain email architecture and services. 5+5=10

    (b) Explain MIME

11. Write a note on : 5+5=10

    (a) VPN

    (b) ARP

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No. of Printed Pages : 3

32421/D21

Reg. No.

IV Semester B.C.A.3 Degree Examination, May - 2019

DESIGN AND ANALYSIS OF ALGORITHMS

Theory (Repeater)

Time : 3 Hours Maximum. Marks : 80

Instructions : *(1)* ***All parts are compulsory.***

(2) Draw diagrams wherever necessary.

PART - A

1. Answer **any ten** questions. **10x2=20**

(a) Define Algorithm.

(b) Give the pseudocode convertion of repeat-until statement.

(c) Define Space and Time Complexity of an Algorithm.

(d) Write Best, Average, and Worst Case Time Complexity of Binary search for successful search.

(e) Write the difference between Straight Maxmin and Recursive Maxmin Algorithm.

(f) What is Feasible solution and Optimal solution ?

(g) What is minimum Cost Spanning Tree ?

(h) What do you mean by two way merge pattern ?

(i) What do you mean by "Principle of optimality" w.r.t. Dynamic programming ?

(j) What is Programme ?

(k) List the Tree Traversal orders and Graph Search and Traversal Methods.

(l) Define Hamiltonian cycle.

P.T.O.

PART - B

Answer **any four** questions. 4x5=20

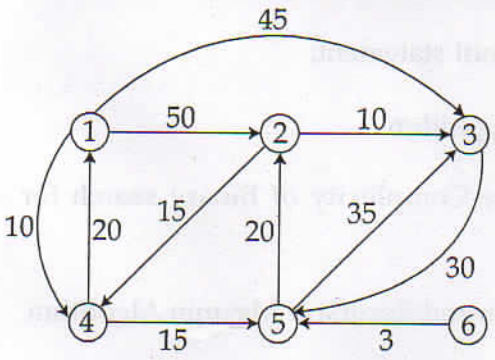
2. Explain Asymptotic Notations.

3. Explain general method of Divide and Conquer (DANDC). Write control abstraction Algorithm of DANDC.

4. Using the Greedy Knapsack algorithm find optimal solution for following :
   n = 7, m = 20
   $(P_1$ to $P_7)$ = (10, 5, 15, 7, 6, 18, 3)
   $(W_1$ to $W_7)$ = (2, 3, 5, 7, 1, 4, 1)

5. Draw the Tree recursive calls of Maxmin for 10 elements.
   a{1 : 10] 40, −3, 25, 63, 17, 32, 99, −10, 5, 16.

6. What is single source shortest path problem ? Find the shortest path and its length from vertex '1' to all destinations for given Graph.



7. Write a note on sum of subset problem.

PART - C

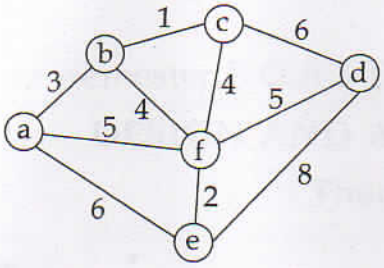
Answer **any four** full questions. 4x10=40

8. Explain the various pseudocode convertions for specifying algorithm. 10

9. (a) Write a note on Strassen's Matrix Multiplication. 5
   (b) Sort the following array using Quick sort. 5
   a{1 : 8] 5, 3, 1, 4, 8, 2, 9, 7.

10. (a) Write the difference between Dynamic programming and Greedy method. 5

(b) Find the minimum cost Spanning Tree for given graph using Kruskal's Algorithm ? 5



11. (a) Write an Algorithm of All pairs of shortest path. 5

(b) Write a note on 4 x 4 Queen's problem. 5

12. Write a short note on **any two** of the following : 2x5=10

(a) Preemptive and non-preemptive scheduling

(b) Travelling salesman problem

(c) Breadth First Search {BFS] and Depth First Search {DFS]

(d) Characteristics of good algorithm.

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No. of Printed Pages : 2

41423/D230

Reg. No. | | | | | | | | |

IV Semester B.C.A.4 Degree Examination, May - 2019

ADVANCED JAVA PROGRAMMING

Theory

(RCU Regular 2018-19)

Time : 3 Hours Max. Marks : 80

Instructions : *All Sections are compulsory.*

SECTION - A

1. Answer **all** following questions : **2x10=20**

(a) What is Event Source and Event Classes ?

(b) List any four JDBC drivers.

(c) What is Servlet ? Mention Servlet Packages.

(d) What do you mean by Datagram ?

(e) Give the syntax to declare variable in JSP.

(f) Define C Data.

(g) Define implicit data and Explicit data.

(h) What is ResultSet ?

(i) Define Deployment Descriptor.

(j) What is EJB ? Mention types of beans.

P.T.O.

SECTION - B

Answer **any four** of the following : **5x4=20**

2. Explain swing features.

3. Explain EJB interfaces.

4. Explain Entity Java bean.

5. Explain JDBC architecture.

6. Explain JTextField and JToggle Button.

SECTION - C

Answer **any four** of the following : **10x4=40**

7. Write a JSP program to find factorial of given number.

8. Difference between JDBC vs ODBC.

9. Explain the following :
   (a) Result Meta Data
   (b) Prepared Statement
   (c) Save Point
   (d) Database Metadata.

10. Explain Session Java bean and Message Driver Java bean.

11. (a) How to user session in Java Servlet.
    (b) Explain JAR fill.

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10433

No. of Printed Pages : 2

32422/D22

Reg. No.

IV Semester B.C.A.3 Degree Examination, May - 2019

PROGRAMMING USING JAVA

THEORY

(RCU 2017 - 18 Repeaters)

Time : 3 Hours Maximum Marks : 80

Instructions : *(1)* ***All*** *Sections are* ***compulsory.***

(2) Draw diagrams whenever necessary.

SECTION - A

1. Answer **any 10** of the following. **2x10=20**

(a) List out the features of Java.

(b) How Java differs from C++?

(c) Define Java statements.

(d) Define default constructor.

(e) Define type casting.

(f) List out all operators in Java.

(g) Write the syntax of If..else statement in java.

(h) Define class and object.

(i) Define interfaces in Java.

(j) Define Applets.

(k) Define stream classes.

(l) Define exceptions in Java.

SECTION - B

Answer **any 4** of the following. **4x5=20**

2. Explain decision making in Java.

3. Explain arrays and different types of arrays in Java.

P.T.O.

4. Explain method overloading in Java.

5. Explain the life cycle of Applets.

6. Explain method overriding in Java.

7. Explain exception handling in Java.

SECTION - C

Answer **any 4** of the following. **4x10=40**

8. (a) Explain threads in Java. **4**

   (b) Explain the life cycle of threads. **6**

9. (a) Explain constructors in Java. **4**

   (b) Write a program in Java on interfaces. **6**

10. (a) Explain how applets differ from applications. **5**

    (b) Write a program in Java on multilevel inheritance. **5**

11. Explain the different types of looping statements in Java with an example for each. **10**

12. Explain in detail byte stream class and character stream classes. **10**

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10512

No. of Printed Pages : 2

32425/D25

Reg. No.

IV Semester B.C.A.3 Degree Examination, May - 2019

VB.NET

Paper-I Theory

(RCU 2017-18 Repeaters)

Time : 3 Hours Max. Marks : 80

Instructions : *(1) All parts are compulsory.*

(2) Draw property chart and screen design for programs.

(3) Draw neat diagrams wherever necessary.

PART - A

1. Answer **any ten** of the following : **2x10=20**

(a) Define CLR.

(b) Define MSIL.

(c) List any four properties of Button Control.

(d) What is Tool tip ?

(e) Write the syntax to declare a variable in VB.Net.

(f) Write any four keywords in VB.Net.

(g) What is MDI form ?

(h) What is function in VB.Net.

(i) What is constructor in VB.Net ? Give example.

(j) Differentiate between a List Box and Combo Box.

(k) Define Menu.

(l) Define ADO.Net.

PART - B

Answer **any four** questions of the following : **4x5=20**

2. Explain any five design features of .NET framework.

3. What is scroll bar ? Write a program to design a color pallet using scroll bar.

P.T.O.

4. What is variable ? Explain scope and accessibility of variable in VB.Net.

5. Explain difference between Msgbox and Inputbox.

6. Write a program to implement various string operations such as reversing, case conversion, length, concatination.

7. Explain following with syntax and example :
   (a) Menu strip (b) Status strip

PART - C

Answer **any four** questions of the following : **4x10=40**

8. (a) Explain any five properties of a form.
   (b) Explain any five properties of a label.

9. Define and Explain the following controls.
   (a) Radio Button (b) Check Box (c) Calendar
   (d) Button (e) Text Box

10. (a) Explain any five data types used in VB.Net.
    (b) Explain any five Mathematical functions with example.

11. Explain following controls in detail.
    (a) Open file dialogs
    (b) Save file dialogs
    (c) Group Box
    (d) Timer
    (e) Scroll Bar

12. Design a student registration application to store the student data in the database using ADO.Net.

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10475

No. of Printed Pages : 2

32423/D23

Reg. No.

IV Semester B.C.A.3 Degree Examination, May - 2019

IT AND INFRASTRUCTURE MANAGEMENT

THEORY (RCU 2017-18 Repeaters)

Time : 3 Hours Maximum. Marks : 80

Instructions : (1) *All Parts are compulsory.*

(2) *Draw diagrams whenever necessary*

PART - A

1. Answer **any ten** of the following. **2x10=20**

(a) What is ITIL ?

(b) Define IT services management process.

(c) What is Financial Management ?

(d) What is the formula for ROI ?

(e) List the major steps involved in implementation of service level management.

(f) What are the functions of configuration management ?

(g) What is problem management ?

(h) What is Bare Machine Recovery ?

(i) What is the difference between hacker and cracker ?

(j) Give the Applications of Biometric Systems.

(k) What is computer forensics ?

(l) What is Denial of service attack ?

PART - B

Answer **any four** of the following. **5x4=20**

2. Explain different types of patterns for e-business.

3. Discuss various subprocess of capacity management.

4. What is incident management ? What are its benefits ?

P.T.O.

5. Explain different methods of testing DRP (Disaster Recovery Plan)

6. Explain in detail about Data Retention.

7. Explain EDI system ?

PART - C

Answer **any four** of the following. **10x4=40**

8. Explain various subprocess involved in service support process.

9. Discuss the linear approach of service level management process.

10. Explain various steps involved in implementing change management.

11. What is cryptography ? Explain different types of cryptographic algorithm.

12. What is the meaning of intellectual property ? Explain the following w.r.t. intellectual property.
    (a) Patent
    (b) Trade Marks
    (c) Trade Secrets

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10552

No. of Printed Pages : 2

32424/D24

Reg. No.

IV Semester B.C.A. 3 Degree Examination, May - 2019

SOFTWARE ENGINEERING

Theory

(RCU 2017-18 Repeaters)

Time : 3 Hours Max. Marks : 80

Instructions : *(1) All Sections are **compulsory**.*

(2) Draw neat diagrams wherever necessary.

SECTION - A

1. Answer **any ten** full questions : **10x2=20**

(a) What do you mean by Software Engineering ?

(b) Mention the disadvantages of waterfall model.

(c) What are functional and non-functional requirements ?

(d) What is prototyping ?

(e) What is data dictionary ? Mention notations used in data dictionary.

(f) Mention the different perspectives of system modeling.

(g) What are the three implementation issues in design ?

(h) What is design pattern ?

(i) What is meant by System Survivability ?

(j) What are the critical factors in people management ?

(k) What are the four major tasks of Risk Management Process ?

(l) What is project scheduling ?

P.T.O.

SECTION - B

Answer **any four** full questions : 4x5=20

2. Explain Waterfall Model.

3. What is Requirement Engineering ? Explain Requirement Elicitation and Analysis.

4. Write the various notations used in DFD. Explain.

5. With an example, explain Use-Case diagram.

6. What are the attributes of dependable processes ?

7. Write a short note on Team-Work.

SECTION - C

Answer **any four** full questions : 4x10=40

8. Explain Boehm's Spiral Model. Draw a neat diagram.

9. Explain :
   (a) Requirement Engineering Process.
   (b) Context Model.

10. Explain Layered Architecture and Client Server Architecture.

11. Write the design guidelines for Secure System engineering.

12. Write short notes on :
   (a) Open Source development
   (b) Prototyping

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