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1M3N19158 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc. Computer Science Degree Examination, November 2019

MCS3C01 – Advanced Database Management System

(2018 Admission onwards)

Time: 3 hours Max. Weightage: 36

PART A

Answer all questions.

Each question carries 1 weightage.

1. Define database snapshot.
2. What is physical schema.
3. What is SQL anomaly?
4. Define ODMG.
5. Define SQL Domain.
6. Define Query Language.
7. Define Super key.
8. Define Relational Algebra.
9. Briefly explain authorization and its uses in SQL.
10. Define Trigger.
11. List down ACID properties.
12. What is a schedule?

(12 x 1 = 12 Weightage)

PART B

Answer any six questions.

Each question carries 2 weightages.

13. Explain Fourth Normal form (4NF) with example.
14. Explain the lost update problem.
15. Draw and explain the state diagram of a transaction.
16. Give an overview of ODL.
17. Differentiate database schema and database instance.
18. Briefly explain the fundamental operations in relational Algebra.
19. Explain the use of SQL command UPDATE with examples.
20. Briefly Explain Object Based Data Model.
21. Explain Single-valued and Multivalued attributes with examples.

(6 x 2 = 12 Weightage)

PART C

Answer any three questions.
Each question carries 4 weightages.

22. Draw an ER-Diagram of a travel company; identify the entities, relationships and attributes for its operators like, reservation and cancellation.
23. Give an overview of OQL.
24. Explain SQL functions with examples.
25. Explain in detail about the aggregate functions with examples.
26. Explain in detail about various DCL statements with examples.
27. Write SQL for create and populate (minimum 5 records) the tables Employee and Department with department-number as the foreign key. Also write down the SQL queries for the following:
    (i) Display number of employees of each department.
    (ii) Display employee details whose salary is greater than average salary.
    (iii)Display the age of the oldest employees of each department.

(3 x 4 = 12 Weighta

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc. Computer Science Degree Examination, November 2019

MCS3C02 – Principles of Compilers

(2018 Admission onwards)

Time: 3 hours Max. Weightage: 36

Part A

Answer all questions. Each question carries 1 weightage

1. Explain the role of lexical analyzer.
2. Explain the front end and back end of compiler.
3. What are the different types of parsing techniques.
4. Explain recursive descent parsing.
5. Define input buffering.
6. Explain left factoring.
7. Define regular expression.
8. Explain machine independent optimization.
9. Explain loop unrolling.
10. Explain 3 address code.
11. Explain dead code elimination.
12. Explain target code generation.

(12 x 1=12 weightage)

Part B

Answer any 6 questions. Each question carries 2 weightage

13. Write a note on ambiguous parse tree.
14. Explain how left recursion can be avoided.
15. Explain LL(1) parser.
16. What are the standard allocations in run- time storage management.
17. Explain control flow and data flow analysis.
18. What are the different types of storage allocation strategies.
19. Explain intermediate code generation.
20. Explain syntax directed definition and syntax directed translation.
21. Explain code generation algorithm.

(6 x2 = 12 weightage)

Part C

Answer any 3 questions Each question carries 4 weightage

22. Design a finite automata which will accept set of all strings over {0,1},in which 10^{th} symbol from the right side is 1.

23. Design a finite automata which will accept set of all strings over {0,1},in which it contains e number of zeros and even number of ones.

24. Design a finite automata which will accept set of all strings over {0,1},in which two zeros a separated by a string of length 4i, i >= 0.

25. Explain LL(1) parsing algorithm with example string a+b*c

26. Draw i) Syntax tree ii) Direct Acyclic Graph for the following expression
    a=b*-c+b*-c.

27. Explain simple LR parsing algorithm with the following case
    S→AA
    A→aA/b

(3x4=12weightage)

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Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc. Computer Science Degree Examination, November 2019

MCS3C03 – Object Oriented Programming Concepts

(2018 Admission onwards)

Time: 3 hours Max. Weightage: 36

Part A

Answer all questions.
Each question carries 1 weightage

1. Which are the Intrinsic Data Types in Java?
2. How JVM makes Java platform independent?
3. How Java performs Type Conversion Automatically?
4. What are the significances of Abstract Classes?
5. What is Static Member in Java?
6. Draw the pictorial representations of various forms of Inheritance.
7. What is a Process?
8. What is the relationship of Java program with I/O devices?
9. What is a socket?
10. What are the advantages of Java Networking?
11. What is Inet Address?
12. What you meant by Component Diagrams?

(12 x 1 = 12 Weightage

Part B

Answer any six questions

13. Explain Scope and Lifetime of Java variables.
14. Illustrate Method Overloading with a suitable example.
15. What is a Constructor? Can a class have different Constructors? Explain.
16. Summarize the Visibility provided by various Access Modifiers.
17. Explain about Thread Synchronization.
18. Write appropriate program illustrating creating, running, blocking and stopping Threads.

19. Explain Event Handling in AWT program.

20. Discuss about Applet life cycle.

21. Draw the Deployment Diagram corresponding to an ATM network consists of comp servers, network, human cashier system etc.

(6 x 2 = 12 Weight

Part C

Answer any three questions.

22. Write a complete Java program to define a class student with details such as name, roll n marks for three subjects, method for reading the details and methods to print roll number and totals marks.

23. Write notes on the following keywords:

    (a) this (b) super (c) final (d) abstract

24. Does Java support the concept of Multiple Inheritance? Explain.

25. How Exceptions are handling in Java?

26. With suitable examples explain the following:

    (a) Drawing of Lines (b) Arcs (c) Rectangles (d) Polygons

27. (a) With the help of a suitable diagram explain JDBC Architecture.

    (b) Explain how database connectivity can be established with JDBC.

(3 x 4 = 12 Weigh

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc. Computer Science Degree Examination, November 2019

MCS3E04 (6) – Data Ware Housing and Data Mining

(2018 Admission onwards)

Time: 3 hours Max. Weightage: 3

PART – A

Questions 1 to 12. Answer all questions. Each question carries *One* Weightage.

1. What is the importance of Data Warehouse.
2. What is a Data Cube?
3. What is Data Reduction?
4. Define Confidence and Support?
5. Define Online Analytical Processing?
6. What is Data Generalization?
7. What is Frequent Pattern Growth (FP-Growth)?
8. What is Constraint Based Rule Mining?
9. What is Support Vector Machine?
10. What is Time Series Database?
11. What is Regression?
12. What is Multimedia Data Mining?

(12 x 1 = 12 wei

PART – B

Questions 13 to 21. Answer any *six* questions. Each question carries *two* weightage.

13. What is Metadata Repository? What are the contents of Metadata Repository?
14. Compare Relational Databases and Data Warehouses?
15. What are the functions of the Data Warehouse back-end tools and utilities?
16. Explain Knowledge Discovery Process with its steps using a neat diagram.
17. Discuss various categories of Information retrieval problems?
18. Explain Latent Semantic Indexing.
19. Explain various tasks in Link Mining.
20. What is Graph Mining? Explain its applications.
21. Explain various features required for assessing a Data Mining System.

(6 x 2 = 12 we

PART – C

Questions 22 to 27. Answer any *three* questions. Each question carries *four* weightage.

22. With neat sketches explain the various multidimensional schemas.
23. Illustrate different OLAP operations with examples.
24. Explain the steps to be followed in the Design of a Data Warehouse.
25. Explain how the Back propagation algorithm works.
26. Explain the Balanced Iterative Reducing and Clustering Using Hierarchies (BIRCH).
27. What are the various categories of Major Clustering Methods?

(3 x 4 = 12 weightag

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc. Computer Science Degree Examination, November 2019

MCS3E05 (5) – Fundamentals of Big Data

(2018 Admission onwards)

Time: 3 hours Max. Weightage: 36

PART A

Answer *ALL* questions. Each question carries *1* weightage.

1. Give an example of *Bigdata Analysis.*
2. Bring out any four features of PostgreSQL?
3. What is HBase?
4. What is MongoDB?
5. How R Environment is important in big data?
6. Give an example of big data application.
7. Define Pig Latin.
8. What is the significance of _id field?
9. Define CMS.
10. Define HDFS.
11. What is meant by Aggregation? Explain.
12. Differentiate slicing and dicing.

(12 x 1 =12 weightage)

PART B

Answer any *SIX* questions. Each question carries 2 weightage.

13. What the sources of Bigdata? Explain.
14. Explain how to create a collection in MongoDB.
15. Explain text analytics tools for Big Data.
16. Compare relational databases and non relational databases.
17. Explain Hadoop common components.
18. What are the steps in big data management? Explain.
19. Explain any two text analytics tools.
20. Give any four features of MongoDB.
21. What are unstructured data? Why it is important?

(6 x 2 =12 weightage)

PART C

Answer any *THREE* questions. Each question carries 4 weightage.

22. 'Suppose your organization is going to have Big Data implementation.' What are the overarching principles to be considered while you make investment on physical infrastructure? Explain in detail.
23. Give classification of bigdata analytics. Explain each of them in detail.
24. What you understand by aggregation? Give a detailed account of aggregation commands in MongoDB.
25. Explain the following.

    i) Hive ii)Pig iii)Oozie iv) HBase
26. Write notes on:

    i)UFO Data

    ii)Wrapper Classes

    iii) Record Reader

    iv)Record Writer

(3 x 4=12 weightage)