Reg. No:............................

Name: ....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Degree Examination, November 2021

MCS3C03 - Object Oriented Programming Concepts

(2019 Admission onwards)

Time: 3 hours   Max. Weightage : 30

Part A
Answer any 4 questions. Each question carries 2 weightage

1. Write down Logical & Bitwise Operators in Java?

2. What is a Class?

3. Why Packages are used in Java?

4. What is Inter Thread Communication?

5. How threads are creating in Java?

6. What is JApplet?

7. What is UML?

(4 x 2 = 8 weightage)

Part B
Answer any four questions. Each question carries 3 weightage

8. How Encapsulation is implementing in Java?

9. How 'static' and 'final' keywords are used in Java?

10. Explain about Byte Streams and Character Streams.

11. Discuss about the life cycle of a Thread?

12. Differentiate between Socket & ServerSocket in Java Networking.

13. What is error page in JSP? Explain.

14. Explain Object Interaction Diagrams in UML?

(4 x 3 = 12 weightage)

Part C
Answer any two questions. Each question carries 5 weightage

15. (a) What is Message Passing in Java?

    (b) Write a Java program to print an array of different data types using a single generic method.

16. Write notes on:

    (a) Abstract Classes   (b) Interface

17. With the help of a suitable diagram explain JDBC Architecture.

18. Explain about the life cycle of JSP.

(2 x 5 = 10 weightage)

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Name: ....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Degree Examination, November 2021

MCS3C01 - Advanced Database Management System

(2019 Admission onwards)

Time: 3 hours Max. Weightage : 30

PART A

Answer any 4 questions. Each question carries 2 weightage

1. What is a database system? List the components of DBMS.

2. What is normalization? Why is it needed?

3. Define functional dependency with example.

4. Write on *select* and *project* operations in relational algebra with examples.

5. Define DDL. Write a query to create a table with 5 attributes. Set the primary key and other constraints.

6. Write the various issues in OODBMS.

7. Differentiate semi structured and unstructured databases.

(4x2 = 8 weightage)

PART B

Answer any four questions. Each question carries 3 weightage

8. What are the important properties of 2PL protocol?

9. Explain the ACID properties of a transaction.

10. Briefly describe the characteristics of relations with example.

11. Explain the 3-schema architecture of database management systems.

12. Compare the distributed database and the object oriented database systems.

13. Define stored procedure. With an example, explain how to create and call the stored procedure.

14. Explain how to resolve deadlock in the database management system.

(4x3 = 12 weightage)

Part C
Answer any two questions. Each question carries 5 weightage

15. Explain the normal forms 1NF, 2NF, 3NF, BCNF, 4NF and 5NF with suitable examples.

16. A. Draw an ER diagram for a database schema with at least three entity types.

    Specify primary key and other constraints.

    Also map this ER diagram to relations.

    B. Explain tuple relational calculus and domain relational calculus.

17. A. What is concurrency control? How is it implemented in DBMS?

    Illustrate with suitable example.

    B. Explain the steps in query processing.

18. A. Given a relational schema, R (A, B, C, D, E) with the following FDs:

    AB -> CD,   ABC -> E, C -> A

      i)   Find any two candidate keys of R.

      ii) What is the normal form of R? Justify.

    B. Explain the architecture of distributed database system.

                                                    (2x5 = 10 weightage)

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Name: ....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Degree Examination, November 2021

MCS3C02 - Principles of Compilers

(2019 Admission onwards)

Time: 3 hours   Max. Weightage : 30

PART A
Answer any 4 questions. Each question carries 2 weightage

1. Explain the different types of translators.

2. Explain the front end and back end of compiler phases.

3. Discuss LEX and YACC.

4. Explain Chomsky hierarchy.

5. Discuss the drawbacks of top down parser.

6. Explain basic block and flow graph.

7. Discuss about region based analysis.

(4x2 = 8 weightage)

PART B
Answer any four questions. Each question carries 3 weightage

8. Explain ambiguity, left recursion and left factoring.

9. Avoid left recursion from $S \rightarrow SSa/b$

10. Explain shift reduce parsing algorithm with example.

11. Explain the construction of LL(1) parsing table construction with an example.

12. What are the different types of intermediate code generation .

13. Explain retargeting with suitable example.

14. Explain live variable analysis.

(4x3 = 12 weightage)

Part C
Answer any two questions. Each question carries 5 weightage

15. Explain various steps in lexical analysis in detail.

16. $E \rightarrow E+T/T, T \rightarrow T*F/F, F \rightarrow id/(E)$

Remove left recursion and find out FIRST() and FOLLOW() of all the non terminals used

in the productions.

17. Explain operator precedence parser.

18. Explain region based analysis.

(2x5 = 10 weightage)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Degree Examination, November 2021

MCS3E02f – Data Ware Housing and Data Mining

(2019 Admission onwards)

Time: 3 hours   Max. Weightage : 30

PART A
Answer any 4 questions. Each question carries 2 weightage

1. Explain Data Warehousing with its characteristics and advantages.

2. What is concept hierarchy? How concept hierarchies can be generated for Nominal Data.

3. What are Lazy Leaner and Eager Leaner? Give examples for each.

4. Explain rule extraction from a Decision Tree.

5. Explain the working of support vector machine?

6. Illustrate Tree Pruning Process with an example.

7. Explain Text Mining with example.   (4 x 2 = 8 weightage)

PART B
Answer any four questions. Each question carries 3 weightage

8. Dissect various schemas for Multidimensional database in Data warehousing.

9. What is Frequent Item set mining? Illustrate a method for frequent item set mining.

10. Elucidate the steps involved in Data Cleaning Process. State why Data Cleaning is required in Data Mining.

11. Illustrate Associative Classification and Rule Based Classification.

12. What are Complex Data Objects? Elaborate Multidimensional Analysis and Descriptive mining of Complex Data Objects.

13. Explain Graph Mining, Multimedia Mining and Spatial Mining.

14. Compare and Contrast

    a) Linear and Non-Linear Regression

    b) Discrimination and Classification

    c) Characterization and Clustering   (4 x 3 = 12 weightage)

Part C
Answer any two questions. Each question carries 5 weightage

15. Illustrate the architecture of Data Mining and elaborate the five primitives for specifying a data mining task.

16. What is Association Rule Mining? What are the measures of effectiveness of the rule? What it aims to achieve? Differentiate FP Growth and Apriori algorithms

17. Elucidate different Objects and Attribute types with examples. What are the various Object Similarity and Dissimilarity measures in Data Mining?

18. What are Outliers? Why Outlier Mining is important? Explain various approaches to Outlier Mining.   (2 x 5 = 10 weightage)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Degree Examination, November 2021

MCS3E01a – Computer Graphics

(2019 Admission onwards)

Time: 3 hours   Max. Weightage : 30

PART A
Answer any 4 questions. Each question carries 2 weightage

1. What is the view port?

2. What is perspective projection?

3. What are stereoscopic views?

4. Give any four applications of Computer Graphics.

5. What is meant by OpenGL? What for it is used?

6. What do you mean by surface rendering?

7. What is composite transformation?

(4x2 = 8 weightage)

PART B
Answer any four questions. Each question carries 3 weightage

8. Differentiate between line filling and flood filling methods.

9. Explain 4-connectedness and 8-connectedness of pixels.

10. What is isometric projection?

11. Give notes on 3D translation with diagrams.

12. Explain oblique projection.

13. What is line clipping? Explain.

14. What is DDA algorithm? Explain

(4x3 = 12 weightage)

Part C
Answer any two questions. Each question carries 5 weightage

15. What are Raster scan and Random scan devices? Give examples for each of them. Explain their working.

16. Explain window to view port coordinate transformation.

17. Explain Cohen-Sutherland's line clipping algorithm.

18. Explain in detail the back-face detection algorithm.

(2x5 = 10 weightage)