R8425	Sub. Code
	546201

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Information Technology

DATABASE SYSTEMS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. Which of the following is generally used for performing tasks like creating the structure of the relations, deleting relation?

   (a) DML(Data Manipulation Language)

   (b) Query

   (c) Relational Schema

   (d) DDL(Data Definition Language)

2. A huge collection of the information or data accumulated form several different sources is known as _____

   (a) Data Management (b) Data Mining

   (c) Data Warehouse (d) Both B and C

3. Which of the following refers to the level of data abstraction that describes exactly how the data actually stored?

   (a) Conceptual Level (b) Physical Level

   (c) File Level (d) Logical Level

4. Which one of the following keyword is used to find out the number of values in a column?

(a) TOTAL (b) COUNT

(c) SUM (d) ADD

5. The Database Management Query language is generally designer for the _____

(a) Support end-users who use English like commands

(b) Specifying the structure of the database

(c) Support in the development of the complex applications software

(d) All of the above

6. Which of the following command is used to delete a table in SQL?

(a) Delete (b) Truncate

(c) Remove (d) Drop

7. Which classed does spatial data types in MySQL correspond to?

(a) Open GSS (b) Open GIS

(c) Closed GSS (d) Closed GIS

8. The variable in DBMS used to communicate error conditions between database management system and program are

(a) SQL CODE (b) SQL STATE

(c) SQL SECTION (d) BOTH B AND C

9. An intranet provides which of the following?

(a) Connectivity to all customers

(b) Connectivity to selected customers

(c) Connectivity to no customers

(d) Connectivity to all of the above

10. Which of the following monitors user activity or internet and transmits that information in the background to someone else?

(a) Malware (b) Adware

(c) Spyware (d) Spam

Part B (5 × 5 = 25)

Answer **all the** questions, choosing either (a) or (b).

11. (a) What is a database system?

Or

(b) Explain the database system architecture.

12. (a) What are the twelve objectives of distributed data base system?

Or

(b) What is OOD? Explain.

13. (a) Explain the Temporal Data and Temporal Consistency of database

Or

(b) What is multimedia database? Explain the challenges.

14. (a) What is spatial database? Explain the types of spatial.

Or

(b) Explain the advantages of spatial database.

15. (a) What is internet? Explain the internet technology.

Or

(b) Explain about the TCP/IP Protocols.

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

16. Explain the three levels of database system architecture.

17. Difference between hierarchical, network and rational data model.

18. What is SQL? Explain about the types of SQL commands.

19. What are RDBMS and OODBMS? Difference between RDBMS and OODBMS.

20. Explain about database design in temporal database.

21. Explain in detail on the spatial data model.

22. Illustrate about the Web databases.

23. Explain the Architecture of Mobile database.

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R8426	Sub. Code
	546202

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Information Technology

DATA MINING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. _____ refers to extracting knowledge from large amount of data

   (a) Data Warehouse (b) Data Integrity

   (c) DBMS (d) Data Mining

2. In _____, the data are modeled to fit a straight line.

   (a) Clustering (b) Prediction

   (c) Linear Regression (d) Histogram

3. A _____ consists of a lattice of cuboids, each corresponding to a different degree of summarization of the given multidimensional data.

   (a) Data cube (b) E.R Diagram

   (c) Data Warehouse (d) Wavelet

4. _____ are data about data.

   (a) DBMS (b) Data Cube

   (c) Metadata (d) Data Mining

5. A typical example of association rule mining is _____

(a) Market basket analysis

(b) Syntax analysis

(c) Semantic analysis

(d) Clustering

6. _____ refers to the preprocessing of data in order to remove or reduce noise and the treatment of missing values.

(a) Data Reduction (b) Data Transformation

(c) Prediction (d) Data Cleaning

7. The process of grouping a set of physical or abstract objects into classes of similar objects is called _____

(a) Classification (b) Prediction

(c) Clustering (d) Segmentation

8. What does the term 'outlier' mean?

(a) A score that is left out of the analysis because of missing data

(b) The arithmetic mean

(c) A type of variable that cannot be qualified

(d) An extreme value at either end of a distribution

9. _____ is the discovery of interesting patterns from large geospatial data bases.

(a) Spatial Data Mining

(b) Clustering

(c) Prediction

(d) Multimedia Data Mining

10. _____ mining mines web log records to discover user access patterns of Web pages.

(a) Multimedia Data (b) Web Content

(c) Web Usage (d) Web Structure

Part B ($5 \times 5 = 25$)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write Short Notes on : Knowledge Discovery Process.

Or

(b) Discuss about Data Cleaning.

12. (a) Write short notes on: Data Warehousing Components

Or

(b) What are the characteristics of OLAP systems? Explain.

13. (a) Discuss about Association Rule Mining.

Or

(b) Write about Rule Based Classification.

14. (a) Write about the k – medoids algorithm

Or

(b) Discuss about Statistical Approach in Model – Based Clustering Methods.

15. (a) Write short notes on: Spatial Data Mining.

Or

(b) Discuss briefly about Trends in Data Mining

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

16. Explain about Data Reduction.

17. Describe Data Similarity and Dissimilarity Measures.

18. Discuss in detail, building a Data Warehouse.

19. Explain about typical OLAP Operations.

20. Describe about mining frequent itemsets without Candidate Generation.

21. Explain any **ONE** Grid – based method in cluster analysis with example.

22. Discuss in detail, Ourlier Detection Methods.

23. Explain any **ONE** Data Mining Applications.

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R8427	Sub. Code
	546203

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Information Technology

DIGITAL IMAGE PROCESSING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. _____ are the foundations for representing images in various degrees of resolution.

   (a) Pixels (b) Wavelets

   (c) Filters (d) Sensor Arrays

2. Digitizing the coordinate values is called _____

   (a) Sampling

   (b) Quantization

   (c) Image Enhancement

   (d) Image Restoration

3. _____ filters are used for blurring and for noise reduction.

   (a) Sharpening (b) Grid

   (c) Cluster (d) Smoothing

4. The most used orthogonal transform in the field of image processing is _____ transform.

(a) Fourier (b) Hartley

(c) Haar (d) Slant

5. The idea behind _____ is to increase the dynamic range of the gray levels in the image being processed.

(a) Compression

(b) Segmentation

(c) Contrast Enhancement

(d) Histogram

6. The principle objective of Sharpening, to highlight transitions is

(a) Intensity (b) Composure

(c) Pixel density (d) Brightness

7. In Homomorphic filtering, which of the following operations is used to convert input image to discrete Fourier transformed function?

(a) Exponential operation

(b) Negative operation

(c) Logarithmic operation

(d) None of these

8. Which is not a type of noise?

(a) Gamma noise (b) Rayleigh noise

(c) Black noise (d) Exponential noise

9. _____ coding is a form of entropy encoding used in lossless data compression.

(a) Arithmetic (b) LZW

(c) Bit plane (d) Wavelet

10. JPEG stand for _____

(a) Joint Picture Experts Group

(b) Joint Photographic Experts Group

(c) Joint Plane Experts Group

(d) Joint Pixel Extend Group

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss briefly on: Elements of Visual Perception.

Or

(b) Write short notes on: Block Matrices and Kronecker Products.

12. (a) Give a short note on: Fundamentals of Spatial Filtering.

Or

(b) Write short notes on : 2 – D Orthogonal and Unitary Transforms.

13. (a) Discuss about Contrast Stretching and Clipping.

Or

(b) Write about Medium Filtering with example.

14. (a) Write short notes on: Sources of Degradation.

Or

(b) Discuss about Geometric Mean Filter.

15. (a) Discuss briefly about need for Data Compression.

Or

(b) Write Short notes on: MPEG.

Part C $(5 \times 8 = 40)$

Answer any **five** questions.

16. Explain about Fundamental Steps in Digital Image Processing.

17. Discuss in detail, Image Sampling and Quantization.

18. Explain about Smoothing Spatial Filters with examples.

19. Describe the 1 – D and 2 – D Discrete Fourier Transformation Techniques.

20. Describe the importance of Histogram Equalization with example.

21. Explain about Inverse and Wiener Filtering.

22. Discuss in detail, Smoothing Splines and Interpolation.

23. Explain Huffman Coding with an example.

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R8428	Sub. Code
	546504

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Second Semester

Information Technology

VIRTUALIZATION AND CLOUD COMPUTING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 ×1 = 10)

Answer **all** questions.

1. Cloud computing means
   (a) providing services like storage, servers, database, networking, etc
   (b) storing data in a database
   (c) a tool used to create an application
   (d) a networking device.

2. ———————— is a type cloud computing service.
   (a) Service-as-a-Software (Saas)
   (b) Software-and-a-server (Saas)
   (c) Software-as-a-Service (Saas)
   (d) Software-as-a-Server (Saas)

3. In which of the following service models the hardware is virtualized in the cloud?
   (a) NaaS (b) PaaS
   (c) CaaS (d) IaaS

4. ———————— is the cloud platform provided by Amazon.
   (a) AWS (b) Cloudera
   (c) Azure (d) All of the mentioned

5. ———————— is an hypervisor.
   (a) VMM (b) VMC
   (c) VC (d) AC

6. The term "elasticity" in cloud computing means
   (a) Ability to scale down
   (b) Ability to scale up
   (c) Parallel
   (d) Both (a) and (b)

7. ———————— programming model is designed for processing large volumes of data in parallel by dividing the work into a set of independent tasks.
   (a) MapReduce (b) HDFS.
   (c) Pig (d) Hive

8. Which one of the following refers to the user's part of the Cloud computing system?
   (a) back end
   (b) management
   (c) infrastructure
   (d) front end

9. which one of the following statements is true about Virtualization?
   (a) It provides a logical name for a physical resource, and on-demand provides an indicator of that physical resource.
   (b) Virtualization analyses the strategy related problems that customers face.
   (c) In virtualization, it is necessary to compile the multitenant properly.
   (d) All of the above

10. The term 'sharing and pooling the resources' is related to ———————— in Cloud computing?

(a) Polymorphism (b) Virtualization

(c) Abstraction (d) None of the mentioned

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the benefits of Cloud computing.

Or

(b) Write short notes on Parallel and Distributed computing.

12. (a) Briefly explain the levels of virtualization.

Or

(b) Explain Server virtualization in detail.

13. (a) Write about RESTful Web Services.

Or

(b) What is the difference between Public, Private, and Hybrid clouds?

14. (a) Describe the need for Inter-cloud resource management

Or

(b) What are some of the main security challenges associated with Cloud computing?

15. (a) What are the key features and benefits of Google App Engine?

Or

(b) What are the benefits of using MapReduce in the Cloud?

Part C

$(5 \times 8 = 40)$

Answer any **five** questions.

16. Briefly explain the types of Cloud services.

17. Illustrate about Peer-to-Peer architecture in Cloud computing.

18. Explain the types of virtualization in Cloud computing.

19. Briefly explain Hypervisor and its types in virtualization.

20. Discuss about Eucalyptus with an example.

21. Write short notes on the following:

    (a) Desktop virtualization

    (b) NIST Cloud computing

22. Discuss the programming models used in Cloud computing.

23. Explain the pros and cons of Virtualization of Cloud computing.

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