



**7th Semester End Term Examination: DEC- 2022**

**Subject : Distributed Database**

**Course : B.TECH. ( CSE)**

**Full Marks : 70**

**Roll No: .....**

**Time : 3 Hours.**

**Instructions to the Candidates:**

- Read the question paper very carefully.
- Start writing from 2nd page onwards; Don't Write On The 1st Page Backside.
- Question Paper is divided into Three Parts -A, B & C.
- Part-A is containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- Do not write anything except your Roll No. on the question paper.
- Possession of Mobile Phones or any kind of Written Material, Arguments with the Invigilator or Discussing with Co-Student will come under Unfair Means and will Result in the Cancellation of the Papers.

**PART - A**

**Multiple Choice Questions**

**[12x1=12]**

- 1.i) The \_\_\_\_\_ contains the description of the entire database as seen by the database administrator.
- a) distributed global dictionary
  - b) distributed data dictionary
  - c) distributed global schema
  - d) distributed data schema
- ii). \_\_\_\_\_ transparency exists when the end user or programmer must specify the database fragment names but does not need to specify where these fragments are located.
- a) Transaction
  - b) Location
  - c) Local mapping
  - d) Fragmentation
- iii) In the \_\_\_\_\_ statistical generation mode, the DDBMS automatically evaluates and updates the statistics after each access....
- a) static
  - b) dynamic.
  - c) manual
  - d) rule-based
- iv) A \_\_\_\_\_ query optimization algorithm is based on a set of user-defined rules to determine the best query access strategy.

- a) statistically based
  - b) rule-based
  - c) manual
  - d) dynamic
- v) A distributed \_\_\_\_ allows a transaction to reference several different remote sites.
- a) request
  - b) site
  - c) data location
  - d) transaction
- vi) In \_\_\_\_ fragmentation a table may be divided into several horizontal subsets, each one having a subset of the attributes.
- a) data
  - b) mixed
  - c) vertical
  - d) horizontal

- vii) Which of the following factors influences the decision to use replication?
- a) database content
  - b) database size
  - c) data style
  - d) number of users
- viii) The \_\_\_\_ processor is the software component residing on each computer that stores and retrieves data located at the site.
- a) transaction
  - b) network
  - c) data
  - d) management

- ix) The \_\_\_\_ protocol is used by the DP to roll back and/or roll forward transactions with the help of the system's transaction log entries....
- a) PREPARE-COMMIT-ROLLBACK.
  - b) DO-PREPARE-COMMIT
  - c) COMMIT-ABORT
  - d) DO-UNDO-REDO
- x) Transaction manager is which of the following?
- a) Maintains a log of transactions
  - b) Maintains before and after database images
  - c) Maintains appropriate concurrency control
  - d) All of the above.

- xi) How to achieve concurrency control?
- a) Synchronization of concurrent access
  - b) Deadlock management
  - c) Consistency and isolation of transaction effect.
  - d) All of these
- xii) The capacity to alter the database schema at one level without altering any other schema level is classified as
- a) Data mapping
  - b) Data independence
  - c) Data dependence
  - d) Data transformation

PART - B

**Answer any FOUR out of SIX** [4x7=28]

3. What is query Translation? Explain classification equivalence Transformations.
4. Explain 2-Phase-Locking as a Distributed Concurrency Control Method.
5. What are the distribution design issues? Explain with examples.
6. What is meant by hybrid fragmentation?
7. Why distributed databases are essential?

PART - C

**Answer any TWO out of FOUR** [2x15=30]

8. Discuss the objectives of Query processing optimization.
9. Discuss about the distribution of access strategy to different sites. Explain the issues involved and how they are tackled.
10. Discuss parametric queries in detail.
11. Explain about Complexity of relational algebra operations.

2. Explain about Architectural Models for DDBMS.



**ARKAJAIN**  
**University**  
 Jharkhand

**7th Semester End Term Examination: 2022-23**

**Subject : Computer Graphics**  
**Course : B.TECH. ( CSE)**  
**Full Marks : 70**  
**Roll No: .....**  
**Time : 3 Hours.**

**Instructions to the Candidates:**

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- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- **Graph paper Required**
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**PART - A**

**Multiple Choice Questions**

[12x1=12]

- 1.i) Which of the following are the features of Computer Graphics?
- a) Creation and deletion of images by computer only
  - b) Deletion and manipulation of graphical images by computer
  - c) Creation and manipulation of graphics by computer
  - d) Creation of artificial images by computer only
- ii) OpenGL stands for
- a) Open Graphics Library
  - b) Open Graphics Layer
  - c) Open Generic License
  - d) Open Guided Line
- iii) Which of the following is the purpose for using clipping in computer graphics?
- a) Zooming
  - b) Copying
  - c) Adding graphics
  - d) Removing objects and lines
- iv) In a graphical system, an array of pixels in the picture is stored in which of the following locations?

- c) Processor
- v) Bitmap is a collection of \_\_\_\_\_ that describes an image.
- a) Pixels
- c) Bytes

vi. Equation of initial decision parameter for the midpoint circle algorithm is:

- a)  $P_0 = 1 + r$
- c)  $P_0 = 1 - r$
- b)  $P_0 = 1. r$
- d)  $P_0 = 1 - 2r$

vii. Which of the following statements is not true with respect to the Digital Differential Analyzer (DDA) algorithm?

- a) It is an incremental method of scan conversion of line
- c) This algorithm can also be used to draw circle
- b) In this method, calculation is performed at each step but by using the results of previous steps.
- d) None of them

viii). What should be sequence of transformations that are required to perform rotation of an object around an arbitrary point?

- a) Inverse Translation, Rotation, Translation.
- c) Rotation, Translation, Scaling
- b) Scaling, Translation, Rotation
- d) Translation, Rotation, Inverse Translation

ix) Which of the following clipping process handles the clipping of strings?

- a) Text Clipping
- c) Curve Clipping
- b) Exterior Clipping
- d) Shape Clipping

x) Which of the following is defined as the sampling of object characteristics at a high resolution and displaying the result at a lower resolution?

- a) Anti-aliasing
- c) Post-filtering
- b) Super-sampling or Post-filtering
- d) Sampling

xi) Which of the following stores the picture information as a charge distribution behind the phosphor-coated screen?

- a) Direct-view storage tube
- c) 3D viewing device
- b) Flat panel displays
- d) Cathode ray tube

xii) What does an aspect ratio mean?

- a) Ratio of vertical points to horizontal points
- c) Number of pixels
- b) Ratio of vertical points to horizontal points and horizontal points to vertical points
- d) Ratio of horizontal points to vertical points

### PART - B

#### Answer any FOUR out of SIX

[4x7=28]

2. What is a Frame Buffer? Explain any two types.
3. Write the working of DDA algorithm. Also mention its merits and demerits.
4. Define Pixel and Resolution. Write algorithm for any Circle Drawing Algorithm.
5. Explain window to viewport transformation with proper diagram.
6. Discuss the working methodology of Plasma panel in brief. How is it better than LED?
7. Differentiate between Vector scan display and Raster scan display.

### PART - C

#### Answer any TWO out of FOUR

[2x15=30]

8. Explain with a neat diagram the working of CRT display. Write Cohen Sutherland algorithm for Line Clipping.
9. Write short notes on: i) Open GL, ii) Tools for animation, iii) Anti-Aliasing technique.
10. Differentiate between Bezier curve and B-Spline curve. Describe Z-buffer algorithm for hidden surface removal.
11. Write notes on: Scaling, Translation, Shearing with proper equation or diagram.



7th Semester End Term Examination: 2022-23

Subject : Biology

Course : B.TECH. ( CSE)

Full Marks : 70

Roll No: .....

Time : 3 Hours.

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PART - A

Multiple Choice Questions

[12x1=12]

- 1.i) Which of the following are purine bases?  
a) Guanine  
b) Adenine  
c) Thymine  
d) Both (i) and (ii)
- ii) Human are made up of what types of cells.  
a) Prokaryotic  
b) Eukaryotic  
c) Plant  
d) None of these
- iii) Amino acids are joined by  
a) peptide bond  
b) phosphodiester linkage  
c) glycosidic bond  
d) none of these
- iv) Robert Julius contribution in science was  
a) Brownian motion  
b) law of conservation of energy  
c) Antibiotics  
d) genetic code
- v) Name the innermost organelle  
a) Plasma membrane  
b) Cytoplasm

PART - C

Answer any THREE out of FIVE

[3x10=30]

8. Define enzyme, Discuss Properties of Enzyme.
9. Define model organism, Why are they used in genetic research, explain 5 model organism
10. What is RNA, How is it different from DNA, Discuss different types of RNA.
11. Define Bio mimicry, Explain 6 examples of Bio mimicry.
12. Define Genetic code, Discuss properties of genetic code.

c) Nucleus

vi) What was inspiration for human flight?

- a) birds
- b) wind mills
- c) ocean waves
- d) leaves

vii) Haemoglobin has

- a) Primary structure
- b) Secondary structure
- c) Tertiary structure
- d) Quaternary structure

viii) Which of the following is not true to the nature of the genetic code?

- a) Codon is triplet
- b) Codons are commaless
- c) Codons are overlapping
- d) Codons are universal

ix) The monomeric unit of protein is called

- a) monosaccharide
- b) Nucleotides
- c) amino acid
- d) fat

x) The monomeric unit of nucleic acid are called \_\_\_\_\_

- a) Nucleotides
- b) monosaccharide
- c) amino acid
- d) fat

xi) The monomeric unit of carbohydrate is called \_

- a) monosaccharide
- b) Nucleotides
- c) amino acid
- d) fat

xii) primary structure of a protein involves

- a) Peptide bond
- b) hydrogen bond
- c) hydrophobic forces
- d) none of above

PART - B

Answer any FOUR out of SIX

[4x7=28]

2. Write down the importance of understanding Biology for computer engineers.
3. Define Epistasis and give example.
4. Discuss significance of Photosynthesis.
5. Discuss classification of Protein on basis of structure.
6. Discuss classification of lipid.
7. Discuss classification of carbohydrate.



**ARKAJAIN**  
**University**  
Jharkhand

**7th Semester End Term Examination: 2022-23**

**Subject : Cryptography & Network Security**  
**Course : B.TECH. ( CSE)**  
**Full Marks : 70**

**Roll No: .....**  
**Time : 3 Hours.**

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**PART - A**

**Short Answer Questions**

**[12x1=12]**

- 1.i) What are the types of attacks on encrypted message?
  - ii) What is cryptanalysis and cryptography?
  - iii) What are the key principles of security?
  - iv) How does simple columnar transposition work?
  - v) Define threat and attack.
  - vi) Give any four names of substitution techniques.
  - vii) Compare stream cipher and block cipher with example.
  - viii) How many keys are required for two people to communicate via a cipher?
  - ix) Compare Substitution and Transposition techniques.
  - x) Find gcd (56, 86) using Euclid's algorithm.
  - xi) List any three hash algorithm.
  - xii) What is masquerading?

PART - B

[4x7=28]

Answer any FOUR out of SIX

2. Explain in detail Transposition Technique?
3. Discuss in detail block cipher modes of operation.
4. Write and explain the digital signature algorithm.
5. Mention any one technique of attacking RSA.
6. Mention the strengths and weakness of DES algorithm.
7. What is Kerberos? Explain how it provides authenticated service.

PART - C

[3x10=30]

Answer any THREE out of FIVE

8. What are the key algorithms used in S/MIME?
9. Briefly explain Diffie Hellman key exchange with an example.
10. Discuss any four Substitution Technique and list their merits and demerits.
11. Perform decryption and encryption using RSA algorithm with  $p=3$ ,  $q=11$ ,  $e=7$  and  $N=5$ .
12. What are the positive and negative effects of firewall?