Code No: K0227

R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July - 2013
DATABASE MANAGEMENT SYSTEMS
(Electrical and Electronics Engineering)

Time : 3 hours   Max. Marks : 80

Answer any Five Questions
All Questions carry equal marks
*****

1. a) What are the responsibilities of a DBA? If we assume that the DBA is never interested in running his or her queries, does the DBA still need to understand query optimization? Why?
   b) What are the main components of a DBMS and briefly explain them?

2. What is join operation and why it is required? With an example, describe condition join, natural join and equijoin.

3. a) What are nested queries? What is correlation in nested queries? How would you use the operators *IN, EXISTS, UNIQUE, ANY, and ALL* in writing nested queries?
   b) What are triggers? What are the uses of triggers? Explain the difference between triggers and integrity constraints

4. What is decomposition and how it is related to redundancy? What problems may be caused by the use of decomposition? Briefly describe problems caused by redundancy.

5. What is lossless join? Briefly describe transaction characteristics in SQL.

6. What is predicate locking and index locking? Describe in detail multiple-granularity locking.

7. Where does a DBMS store persistent data? How does it bring data into main memory for processing? Briefly describe hash-based index.

8. What issues are considered in using clustered indexes? Briefly describe index only evaluation method.

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IV B.Tech II Semester Supplementary Examinations, July - 2013
DATABASE MANAGEMENT SYSTEMS
(Electrical and Electronics Engineering)

Time : 3 hours   **Max. Marks : 80**

Answer any Five Questions
All Questions carry equal marks
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1. a) What is a view? What is data independence? In what way view is related to data independence?
    b) Briefly describe aggregations.

2. What are integrity constraints? Define primary key constraint and foreign key constraint. How these constraints are expressed in SQL?

3. What is a trigger and what are the parts of trigger? With an example, describe the differences between row-level and statement-level trigger? Briefly describe when you would use triggers over integrity constraints and vice versa.

4. What is functional dependency? Why some functional dependencies are called trivial? Give a set of FDs for the relation schema R (A, B, C, D) with primary key AB under which R is in 1NF but not in 2NF.

5. What is a transaction? List and explain ACID properties.

6. a) What is conservative 2PL? Describe the process of handling deadlocks in DBMS.
    b) What is recovery manager? Briefly describe main principles behind ARIES recovery algorithm.

7. How is data organized in a tree-based index? When would you use a tree-based index? When would you use a hash-based index?

8. What DBMS component reads and writes data from main memory, and what is the unit of I/O? Briefly describe system crash.

R07

IV B.Tech II Semester Supplementary Examinations, July - 2013
DATABASE MANAGEMENT SYSTEMS
(Electrical and Electronics Engineering)

Time : 3 hours **Max. Marks : 80**

Answer any Five Questions
All Questions carry equal marks
*****

1. a) Describe different levels of data abstraction. What is the importance of it?
    b) With an example, briefly describe *Entity vs Relationship* and *Entity vs Attribute*.

2. What are the SQL constructs to modify the structure of tables and destroy tables and views? Describe what happens when destroy a view.

3. What are null values? What is grouping? Is there a counterpart in relational algebra? Explain this feature, and discuss the interaction of the HAVING and WHERE clauses.

4. What is BCNF? What is the motivation for putting a relation in BCNF? What is the motivation for 3NF? Compare and Contrast *3NF Vs BCNF*.

5. What is lock thrashing? With an example, describe SQL support for creating and terminating transactions.

6. a) What is transaction table and what is dirty page table? Briefly describe WAL protocol.
    b) What is concurrency control? How strict 2PL does ensure serializability and recoverability?

7. What is a disk block or page? How are blocks arranged in a disk? How does this affect the time to access a block? Discuss seek time, rotational delay, and transfer time.

8. What is dirty page table? What is a heap file? How are pages organized in a heap file? Discuss list versus directory organizations.

Code No: K0227 **R07** Set No. 4

IV B.Tech II Semester Supplementary Examinations, July - 2013
DATABASE MANAGEMENT SYSTEMS
(Electrical and Electronics Engineering)

Time : 3 hours **Max. Marks : 80**
Answer any Five Questions
All Questions carry equal marks
*****

1. a) What is weak entity? With an example briefly describe *Binary Vs Ternary relationships*.
   b) What is relationship? Briefly describe additional features of ER model.

2. Does the relational model, as seen by an SQL query writer, provide physical and logical data independence? Explain with a suitable example.

3. What types of SQL constraints can be specified using the query language? Can you express primary key constraints using one of these new kinds of constraints? If so, why does SQL provide for separate primary key constraints syntax?

4. What is functional dependency? With an example, briefly describe functional dependencies.

5. What is attribute closure? What is interleaved execution? Briefly describe WR, RW and WW conflicts.

6. a) What is system crash? With an example, describe in detail about phases of recovering from a system crash.
   b) What is Log? What is Compensation Log Record? Briefly describe the contents of the update log record.

7. Why are disks used so widely in a DBMS? What are their advantages over main memory and tapes? Briefly describe the role of the DBMS disk space manager.

8. What are latches and convoys? Describe in detail about ISAM.

R07

IV B.Tech II Semester Supplementary Examinations, July - 2013
INTERACTIVE COMPUTER GRAPHICS
(Common to Mechanical Engineering and Automobile Engineering)

Time : 3 hours   **Max. Marks :80**

Answer any Five Questions
All Questions carry equal marks
*****

1. a) List and describe the applications of Computer Graphics.
    b) Describe how the plasma panel works.

2. a) Write the DDA scan conversion algorithm for generating the points on line segment, when two end-points are specified as input.
    b) Using the above algorithm, generate the intermediate points of the line segment, if the two end-points are given as (30, 18) and (20, 10).

3. Find out the sequence of basic transformations equivalent to
    a) x - direction shearing matrix and
    b) y - direction shearing matrix.

4. a) Discuss the procedure to resolve whether a polygon edge intersects a window edge or not.
    b) Mention the stages involved in transforming Window-to-viewport coordinate. Describe each stage.

5. Describe the quadratic Bezier blending functions for three control points. Label the maximum and minimum values by plotting each function.

6. a) Prove that the multiplication of three dimensional transformation matrices for any two successive rotations about any one of the coordinate axis is cumulative.
    b) Explain about reflection and shear transformation in 3-D geometric transformations.

7. a) Give classification of different visible surface detection methods.
    b) Describe in detail about depth sorting technique.

8. Explain with suitable examples the features of animation language key frame systems.

Code No: K0328 **R07** Set No. 2

IV B.Tech II Semester Supplementary Examinations, July - 2013
INTERACTIVE COMPUTER GRAPHICS
(Common to Mechanical Engineering and Automobile Engineering)
Time : 3 hours   Max. Marks :80
Answer any Five Questions
All Questions carry equal marks
*****

1. a) Mention the applications suitable for raster refresh systems, vector refresh systems, plasma panels and LCDs.
   b) Describe the use of virtual reality systems in design applications.

2. a) Generate the intermediate points on the line with end-points (20,10) and (30,18) using Bresenham's algorithm.
   b) List and describe the steps involved in mid point circle algorithm?

3. Prove that the transformation matrix for a reflection about the line $y = -x$ is equivalent to a reflection relative to the y-axis followed by a counter clockwise rotation of 90^0.

4. With examples, explain the Cohen-Sutherland line clipping algorithm for all the three cases of the lines.

5. a) Describe basic illumination models in detail.
   b) Explain about Bezier curves and describe about conditions for forming two Bezier curve segments smoothly.

6. a) Write the steps involved in aligning an arbitrary plane with one of the principal planes.
   b) With suitable examples, make a distinction between the parallel projection and Perspective Projection view volumes.

7. a) With an example, explain the depth-buffer (z-buffer) algorithm for hidden surface removal.
   b) Demonstrate the process of implementing area-sub division method.

8. a) Describe about computer animation functions.
   b) Explain about computer animation language.

IV B.Tech II Semester Supplementary Examinations, July - 2013
INTERACTIVE COMPUTER GRAPHICS
(Common to Mechanical Engineering and Automobile Engineering)

Time : 3 hours   Max. Marks :80

Answer any Five Questions
All Questions carry equal marks
*****

1. a)   List and describe the applications of computer graphics in the area of image processing.
    b)   Explain the construction of the Raster- refresh devices with suitable sketch and their operating characteristics.

2. a)   Write Bresenham's line generation algorithm suitable for any slope.
    b)   What is a frame buffer? Describe how the pixel screen positions are stored and retrieved from frame buffer.

3. Prove that the transformation matrix for a reflection about the line y=x is equivalent to a reflection relative to the x axis followed by a counter clockwise rotation of 90^0.

4. a)   Obtain the viewing transformation matrix for window-to-viewport mapping.
    b)   Explain the Sutherland-Hodgeman algorithm for polygon clipping.

5. Discuss the procedure to design two-dimensional cubic-Bezier curve shapes that have second order piece-wise continuity.

6. a)   Describe the procedure for reflecting an about an arbitrarily selected plane.
    b)   Give the classification of the projections and list their properties.

7. a)   Explain the implementation of BSP-tree method for visible surface detection.
    b)   Explain how the use of coherence property while evaluating points along and between scan-lines.

8. a) What is computer animation? Describe in detail about the design of animation sequence.
    b) Explain about motion specification in computer animation.

Code No: K0328 **R07**

IV B.Tech II Semester Supplementary Examinations, July - 2013
INTERACTIVE COMPUTER GRAPHICS
(**Common to Mechanical Engineering and Automobile Engineering**)
Time : 3 hours   Max. Marks :80
Answer any Five Questions
All Questions carry equal marks
*****

1. a) With a neat cross-sectional view explain the functioning of CRT devices.
    b) Discuss the applications for large-screen displays and also list out the graphical output devices that support it?

2. a) List the steps involved in scan-line polygon-fill algorithm. Illustrate with an example.
    b) Write a boundary fill algorithm to fill an 8-connected region.

3. Establish the form of the transformation matrix for a reflection about an arbitrary line with equation y = mx+b.

4. a) Describe the procedure followed in point clipping for a rectangular window.
    b) Differentiate between Cohen-Sutherland and Sutherland-Hodgeman algorithms.

5. Given the plane parameters W, X, Y and Z for all surfaces of an object, describe the procedure to determine whether a specified point is inside or outside the object.

6. a) Extend Sutherland-Hodgeman algorithm for polygon clipping to clip three-dimensional planes.
    b) How to implement the shearing of an object with respect to the three coordinate axes.

7. a) Describe the scan line method for visible surface detection.
    b) Make a comparison of depth-sort and z-buffer algorithms.

8. Explain with an example how a sphere can be transformed into a specified polyhedron.

Code No: K0525 **R07** Set No. 1

IV B.Tech II Semester Supplementary Examinations, July - 2013
HUMAN COMPUTER INTERACTION
(**Computer Science and Engineering**)

Time: 3 hours   Max. Marks: 80
Answer any Five Questions
All Questions carry equal marks
*****

1. Explain the goals of user design in detail   [16]

2. a) What are the general principles of user interface design
   b) Design a user interface for automated ticket vending machine for state road
      transport; consider all necessary data in your design   [8+8]

3. a) List about 10 common usability problems in Graphical system
   b) Explain about human interaction speeds in design of interface.   [8+8]

4. Explain technological consideration in interface design   [16]

5. Explain windows presentation styles in detail   [16]

6. Explain the importance of images in designing User Interface   [16]

7. Explain the following
       a) Specification methods
       b) Building tools   [8+8]

8. Explain in detail about the construction and functioning of different types of pointing
   devices.   [16]

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Code No: K0525

R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July - 2013
HUMAN COMPUTER INTERACTION
(Computer Science and Engineering)

Time: 3 hours **Max. Marks: 80**

Answer any Five Questions
All Questions carry equal marks
*****

1. Explain the importance of user interface and benefits of good design [16]

2. a) What are the characteristics that direct manipulation should possess?
   b) Explain the characteristics of Web Interface [8+8]

3. Explain guidelines for designing conceptual models [16]

4. Explain the importance of the following in interface design
   a) Information retrieval on Web
   b) Statistical graphics [8+8]

5. Explain different types of windows in detail [16]

6. a) Explain choosing colors for textual graphics screens in design of interface
   b) Explain about effective foreground/Background combination [8+8]

7. Explain about state charts method in specification mechanism. [16]

8. a) List various types of interaction tasks for pointing devices
   b) Describe speech reorganization and digitization interaction devices in detail [8+8]

R07

IV B.Tech II Semester Supplementary Examinations, July - 2013
HUMAN COMPUTER INTERACTION
(Computer Science and Engineering)

Time: 3 hours **Max. Marks: 80**
Answer any Five Questions
All Questions carry equal marks
*****

1. a) How to test a good design of screen?
    b) Explain the computers ability to interface with humans. [8+8]

2. Explain the differences between GUI and Web interface design in detail [16]

3. Explain the techniques for determining requirements of Interface design [16]

4. Explain human consideration in screen design [16]

5. Explain the components of windows in detail [16]

6. a) What is color? Explain the different types of color? What are the possible uses of colors and problems associated with it.
    b) Explain various considerations in choosing background and foreground color for web page [8+8]

7. a) Describe the factors in choosing any user interface building tools
    b) Explain the role of user interface architecture in building software tools [8+8]

8. Explain the following
    a) Keyboard and function keys
    b) Image and video displays [8+8]

Code No: K0525 **R07** Set No. 4

IV B.Tech II Semester Supplementary Examinations, July - 2013
HUMAN COMPUTER INTERACTION
(Computer Science and Engineering)

Time: 3 hours   Max. Marks: 80
Answer any Five Questions
All Questions carry equal marks
*****

1. a) Explain the chronological history of graphical user interface
    b) Compare about screen design in 1970's, 1980's and 1990's.   [8+8]

2. a) Explain the advantages and disadvantages of graphical system
    b) Compare the printed pages and web pages   [8+8]

3. a) Explain design standards in user interface design
    b) How ordering of screen data necessary in user interface design   [8+8]

4. Explain about interface design goals in detail.   [16]

5. Explain the characteristics of windows in detail   [16]

6. Explain general guidelines for choosing the proper words and writing clear messages
    and text in User Interface design   [16]

7. Explain various tools in building graphical user interface   [16]

8. Write short notes on
    a) Speech reorganization
    b) Interactive devices   [8+8]

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