

Subject Code: G0503/R13

M. Tech –I Semester Regular Examinations, March, 2014

DATA BASE MANAGEMENT SYSTEMS

(Common to CS and CS&E)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions

All questions carry EQUAL marks

1. a) Explain the three schema architecture with suitable figure. How the scheme is defined at various levels? Explain.
b) Explain the two types of Data independence.
2. What are the various guidelines required to guide the design process of Entity Relationship concepts. Explain with an example.
3. Describe the six clauses in the syntax of an SQL retrieval query. Show what type of constructs can be specified in each of the six clauses. Which of the six clauses are required and which are optional?
4. a) Define insertion, deletion, and modifications anomalies. Why they are considered bad? Illustrate with examples.
b) List the informal guidelines for a relational scheme design. What happens when the guidelines are violated?
5. What is Normalization? Define, and explain various normal forms with examples.
6. a) What is a lock? Describe the types of locks used in concurrency control.
b) What are the rules followed when shared/exclusive locking scheme is used?
7. Explain the following terms: Transaction, granularity, concurrency, dirty read, serializability, and ACID properties of Transactions.
8. a) Discuss the merits and demerits of providing secondary indexes, and primary indexes.
b) Discuss the different conditions of modification of a B-tree and a B+ tree when an element is inserted.

Subject Code: G1508/R13

M. Tech –I Semester Regular Examinations, March, 2014

GEOMETRIC MODELLING

(Common to MD, MED and CAD/CAM)

Time: 3 Hours

Max Marks: 60

**Answer any FIVE questions
All questions carry EQUAL marks**

- 1) a) Explain about Non – Parametric representation of curves.
b) Generate a circle of radius 2 with center located at (2 , 2) in parametric form by taking eight unique points.
- 2) Consider the four dimensional position vectors $P_1[0 \ 0]$, $P_2[1 \ 1]$, $P_3[2 \ -1]$, $P_4[3 \ 0]$. Determine the piecewise cubic spline curve through them using chord approximation for the t_k 's. the tangent vectors at the end are $P_1'[1 \ 1]$ and $P_4'[1 \ 1]$. Calculate intermediate points at $\tau = 1/3, 2/3$ for each segment.
- 3) Consider the four dimensional position vectors $P_1[1 \ 2]$, $P_2[2 \ 2]$, $P_3[3 \ 1]$, $P_4[4 \ 0]$. determine the parabolically blended curve between P_2 and P_3 using the generalized formulation. Calculate intermediate points at $t = 1/3, t = 2/3$.
- 4) (a) Explain about the properties of Bezier curve.
(b) The coordinates of four points are given by $P_0 = [2 \ 2 \ 0]^T$, $P_1 = [2 \ 3 \ 0]^T$, $P_2 = [3 \ 3 \ 0]^T$, $P_3 = [3 \ 2 \ 0]^T$. Find the equation of the Bezier curve. Also find points on the curve for $u = 0, 0.25, 0.50, 0.75, 1$.
- 5) (a) What is Bilinear surface write its applications.
(b) Determine the point on the bilinear surface defined by $P(0,0) = [0 \ 0 \ 1]$, $P(0, 1)=[1 \ 1 \ 1]$, $P(1,0) = [1 \ 0 \ 0]$, $P(1,1) = [0 \ 1 \ 0]$ i.e., the ends of opposite diagonals on opposite faces of a unit cube in the object space, corresponding to $u = w = 0.5$ in parametric space.
- 6) Show by example that a planar coons bicubic surface results when the position , tangent and twist vectors all lie in the same plane.
- 7) a) Explain about tricubic solid in detail.
b) Discuss with the help of neat sketches, the most commonly used solid entities.
- 8) What is boundary representation? What are the basic entities for B rep? Validate the B rep model using Euler's law.

Subject Code: G4504/R13

M. Tech –I Semester Regular Examinations, March, 2014

DIGITAL DATA COMMUNICATIONS

(Com to S&SP,DIP,CE&SP,C&SP,SP&C,DE&CS,E&CE,M&CE,DECE and CS)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions

All questions carry EQUAL marks

1. (a) Explain the working principle of 16-QAM system with the help of a neat diagram. (8)
(b) A QAM type modulator converts groups of 6 bits into symbols. What are the values of symbol rate and number of different symbols, if the data rate is 12000 bps. (4)
2. (a) Explain the operation of transmitter and receiver of UART with a neat diagram. (8)
(b) What are the various network topologies? Explain. (4)
3. (a) Explain the TCP/IP protocol suite with a neat diagram. (9)
(b) Compare TCP/IP protocol with OSI model. (3)
4. (a) Discuss the various types of error detection and error correction methods available. (8)
(b) Determine the number of Hamming bits required for a 12-bit data string of 101100010010 and generate the hamming codeword. (4)
5. (a) What are the tasks of FDDI media access control protocol? Explain. (7)
(b) Differentiate the circuit switching and packet switching. (5)
6. (a) Describe the different types of routers used in data communications. (8)
(b) Differentiate the token bus and token ring. (4)
7. (a) Explain the principle of CDMA with necessary diagrams. List out its advantages. (8)
(b) Differentiate the CDMA and OFDMA. (4)
8. Write short notes on (6+6)
(a) DTE-DCE interface
(b) Carrier Sense Multiple Access(CSMA)

Subject Code: C5804/R09

M. Tech –I Semester Supply Examinations, March, 2014

DATA BASE MANAGEMENT SYSTEMS

(Common to CS, CSE, CS & Technology and Neural Networks)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions

All questions carry EQUAL marks

1. a) What is physical data independence? Explain briefly.
b) Briefly explain the components at logical level of DBMS architecture.
2. a) Explain the difference between a weak and a strong entity set with examples.
b) Differentiate candidate key and primary key for a given relation?
3. a) Explain about the selection and projection set operations in relational algebra.
b) What are null values? Are they supported in relational model? Can primary key fields of a table contain null values?
4. a) Contrast 3NF decomposition method with BCNF decomposition method illustratively.
b) What is functional dependency? How is it different from multi-valued dependency?
5. a) Define Indexing. Explain about Hash based and Tree based indexing with example.
b) Explain in detail about multiple key access mechanism.
6. a) Explain in detail about data structure diagrams with an example.
b) Describe about network data model in detail.
7. a) Explain in detail about tree structured diagrams .
b) Describe about virtual records in detail.
8. a) What is a serializable schedule ? What is a recoverable schedule? What is a schedule that avoids cascading aborts?
b) What overheads are associated with lock-based concurrency control?
