Subject Code: G0503/R13

M. Tech – I Semester Regular/Supplementary Examinations, April, 2015

DATA BASE MANAGEMENT SYHSTEMS

(Common to CS and CS&E)

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions

All questions carry EQUAL marks

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1. a) What are the additional features and constraints used to draw the ER models? Explain
   b) What does the DBMS do when constraints are violated? What is referential integrity? Write and explain the SQL statements to deal with violation of referential integrity.

2. a) Define and explain all variations of join operation. Can we express join operation in terms of cross-product, selections and projection? Explain
   b) Write and explain how various complex integrity constraints utilize the full power of SQL queries?

3. a) What is Functional dependencies? How to infer all FDs implied by a set of FDs using axioms? Explain
   b) Explain the following: i) Multivalued Dependency ii) Inclusion Dependency

4. a) What overheads are associated with strict two-phase locking protocol with respect to blocking and aborting ? Explain.
   b) Explain about optimistic concurrency control and improved conflict resolution.

5. a) Write and explain various phases followed by recovery management after a system crash.
   b) Explain how minimal cover for set of FDs is useful to arrive at lossless and dependency preserving decomposition into 3NF

6. a) Discuss stripping and its impact on performance and redundancy and its impact on reliability with respect to RAID system.
   b) Write and explain various indexes used in file organization.

7. What is the order of B+ tree? Explain B+ tree insertion and search algorithms and compare with this ISAM.

8. a) Destroying/ Altering tables and views
   b) Comparison using NULL values
   c) Database Architecture with different views

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Subject Code: G1508/R13

M. Tech – I Semester Regular/Supplementary Examinations, April, 2015

GEOMETRIC MODELING

(Common to MD, MED and CAD/CAM)

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions

All questions carry EQUAL marks

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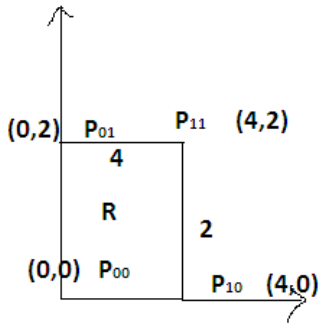
1. Define, describe and bring out the difference among explicit, implicit and parametric form of curves.

2. (a). Supply the algebraic form of a cubic spline.
   (b).derive the geometric form of hermit's cubic spline.

3. (a).Explain beizer surface.
   (b).find the equation of the beizer surface that covers the region R. Also find the surface vectors and its mid point.



4. Expliain analytic surface with suitable examples.

5. Fit a B-spline curve with the following control points $P_1(0,0)$, $P_2(2,2)$, $P_3(4,4)$, $P_4(6,6)$.

6. Derive the equation of hermit's bicubic surface.

7. Explain the following in detail.
   (a). Half space modeling
   (b). Tricubic solid
   (c). Discuss the properties of composite objects.

8. Develop the equations of following surfaces
   a) Torus
   b) Ruled surface
   c) coons bilinear patch
   d) Bezier surface of degrees 2X3.

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Subject Code: G4304/R13

M. Tech – I Semester Regular/Supplementary Examinations, April, 2015

FLEXIBLE AC TRANSMISSION SYSTEMS

(Common to PE, P&ID, PE&ED, PE&D and EM&D)

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions

All questions carry EQUAL marks

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1. a) Compare between HVAC and HVDC transmission systems.
   b) With examples, discuss the power flow through parallel transmission systems.

2. What are the main advantages of FACTS controllers? Also list and explain different types of FACTS controllers.

3. a) What are the advantages of three-phase converters over single-phase converters?
   b) With a net circuit diagram and waveforms, explain the operation of full wave bridge converter.

4. What is the importance of pulse number of a converter? Discuss the transformer connections for 12 pulse and 24 pulse operation of a converter.

5. a) What are the main objectives of shunt compensation?
   b) With phasor diagram and power-angle curves, discuss midpoint voltage regulation of a transmission line.

6. What are static var generators? Explain the operation of variable impedance type static var generators.

7. What is a STATCOM? What are its applications? Explain its operation.

8. List different series FACTS converters. With neat circuit diagrams, discuss the operation of thyristor switched series capacitor (TSSC), and thyristor controlled series capacitor (TCSC).

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Subject Code: G4504/R13

M. Tech – I Semester Regular/Supplementary Examinations, April, 2015

DIGITAL DATA COMMUNICATIONS

(Common to SSP, DIP, CE&SP, C&SP, SP&C, DE&CS, E&CE, CS, M&CE and DECE)

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions

All questions carry EQUAL marks

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1. a) Explain the operation of QPSK modulator and demodulator with neat diagrams and draw its constellation diagram.
   b) Write short notes on the following
      i) 16QAm ii) Carrier Recovery

2. a) Discuss various digital data transmission modes.
   b) Compare the different categories of networks.

3. a) Explain the functions of DCE with an example.
   b) Explain in detail about UART, USB.

4. a) Explain LRC and compare it with CRC and VRC.
   b) Write short notes on bit oriented protocol.

5. a) Explain the concept of FDDI
   b) Distinguish between token ring and token bus.

6. Write short notes on
   a) Metropolitan Area networks
   b) Networking devices

7. a) Explain the basic principle of operation of OFDMA and compare it with CDMA.
   b) Briefly explain about the polling token passing and channelization.

8. Write short notes on
   a) Synchronous protocols
   b) SMDS switching
   c) Token ring

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Subject Code: C5804/R09

M. Tech – I Semester Supply Examinations, April, 2015

DATABASE MANAGEMENT SYSTEMS

(Common to NN, CSE, CS and CST)

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions

All questions carry EQUAL marks

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1. a) Explain the structure of DBMS with a neat diagram.
   b) Explain about the additional features of ER model with appropriate examples.

2. Consider the following schema and answer the queries below:
   Sailors(*sid:* integer, *snarne:* string, *rating:* integer, *age:* real)
   Boats(*bid:*integer, *bname:* string, *color:* string)
   Reserves *(sid:*integer, *bid:*integer, *day:* date)
   a) Find the colors of the boat reserved by lubber
   b) Find the names and ages of sailors with a rating above 7
   c) Find the sailors who have reserved all the red boats.
   d) Find the names of the sailors who have reserved atleast two boats

3. a) What is logical connectivity? Explain about various logical connectivity operators idetail.
   b) Consider the schema given under Question 2 and answer the following in Relational Algebra
      i. Find the names of sailors who have reserved boat 103.
      ii. Find the names of the sailors who have reserved atleast one boat.
      iii. Find the names of the sailors who have reserved a red or green boat.

4. a) What is the role of multivalued dependencies in schema refinement ? Explain.
   b) What is decomposition? Explain about lossless join and dependency preserving decomposition with suitable examples.

5. a) Explain the ACID properties of transaction management.
   b) What is Lock based concurrency control? Explain.

6. a) What is a deadlock ? Explain.
   b) Explain the Write-Ahead log protocol in detail.

7. What is Indexing? Explain hash based indexing.

8. a) Distinguish between extendable and linear hashing.
   b) What ar B+ trees? Explain.

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