GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Third Semester – Regular) Examinations, December – 2020

BESCS 3052 – DATABASE MANAGEMENT SYSTEMS
(EE & EEE)

Time: 2 hrs   Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions)   **(1 x 10 = 10 Marks)**

Q.1. Answer *ALL* questions   [CO#]   [PO#]

a. A _____ integrity constraint requires that the values appearing in specified   CO2   PO1
attributes of any tuple in the referencing relation also appear in specified attributes of at
least one tuple in the referenced relation.

(i) Referential	(ii) Referencing
(iii) Specific	(iv) Primary

b. Tables in second normal form (2NF):   CO3   PO1

(i) Eliminate all hidden dependencies	(ii) Eliminate the possibility of a insertion anomalies
(iii) Have a composite key	(iv) Have all non key fields depend on the whole primary key

c. There are two functional dependencies with the same set of attributes on the left side of   CO3   PO2
the arrow:

> A->BC
> A->B
> This can be combined as

(i) A->BC	(ii) A->B
(iii) B->C	(iv) None of the mentioned

d. Indices whose search key specifies an order different from the sequential order of the   CO4   PO1
file are called _____ indices.

(i) Nonclustered	(ii) Secondary
(iii) All of the mentioned	(iv) None of the mentioned

e. Which of the following has "all-or-none" property?   CO4   PO1

(i) Durability	(ii) Isolation
(iii) Atomicity	(iv) All of the mentioned

f. The deadlock in a set of a transaction can be determined by: CO3   PO2

(i) Read-only graph	(ii) Wait graph
(iii) Wait-for graph	(iv) All of the mentioned

g. Which of the following is a fundamental operation in relational algebra?   CO2   PO1

(i) Set intersection	(ii) Natural join
(iii) Assignment	(iv) None of the mentioned

h. Which refers to a property of computer to run several operation simultaneously and   CO3   PO1
possible as computers await response of each other

(i) Concurrency	(ii) Recovery
(iii) Deadlock	(iv) Backup

i. _____ rollback requires the system to maintain additional information about the state of all the running transactions.   CO4   PO1

(i) Total   (ii) Partial

(iii) Time   (iv) Commit

j. Suppose relation R(A,B,C,D,E) has the following functional dependencies: CO2   PO2

      A -> B
      B -> C
      BC -> A
      A -> D
      E -> A
      D -> E
      Which of the following is not a key?

(i)A   (ii)E

(iii)C   (iv)D

PART – B: (Short Answer Questions)   (2 x 5 = 10 Marks)

Q.2. Answer *ALL* questions   [CO#]   [PO#]

a. Explain the terms: 1) Physical data independence, 2)Logical data independence   CO1   PO1

b. Write an example on each selection and projection operation of relational algebra?   CO2   PO1

c. Differentiate between Partial and Transitive Functional dependency   CO3   PO2

d. Define Recovery in DBMS.   CO3   PO1

e. Explain dense indexing.   CO4   PO1

PART – C: (Long Answer Questions)   (6 x 5 = 30 Marks)

Answer *ANY FIVE* questions   Marks   [CO#]   [PO#]

3. Draw and explain the detailed system architecture of DBMS.   (6)   CO1   PO1

4. Explain in detail about the three tier schema architecture of DBMS.   (6)   CO1   PO1

5. Draw an ER diagram for a Banking System?   (6)   CO2   PO2

6. Consider the following schema: (6)   CO2   PO2

      Suppliers (Sid, sname, address)
      Parts (PID, pname, color)
      Catalog (sid , pid, cost)

    Write the relational algebraic expression for the following queries.

      a) Find the name of suppliers who supply some red parts.
      b) Find the sids of suppliers who supply some red or green parts.
      c) Find the sids of suppliers who supply some red part or the part name is "hard disk".
      d) Find the sids of suppliers who supply every part.

7. Find out the number of candidate key present in the given relation   (6)   CO3   PO2

    R:(WXYZ)

    FD: {Z→W, Y→XZ, WX→Y}

8. The following functional dependencies hold true for the relational schema (6) CO3 PO2
   R (W , X , Y , Z)
   FD: {X → W, WZ → XY, Y → WXZ}
   Write the irreducible equivalent / Canonical Cover for this set of functional dependencies.

9. Write about the various levels of RAID with neat diagrams. (6) CO4 PO1

10. Explain concurrency control with lock based protocols (6) CO4 PO1

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