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Total Number of Pages : 02

B.Tech  
BECS2208

4<sup>th</sup> Semester Back Examination 2018-19

DATABASE MANAGEMENT SYSTEM

BRANCH : BIOMED, BIOTECH, CHEM, ENV, FASHION, FAT, METTA, MINERAL,  
MINING, MME, PLASTIC, TEXTILE

Time : 3 Hours

Max Marks : 70

Q.CODE : F620

Answer Question No.1 which is compulsory and any FIVE from the rest.

The figures in the right hand margin indicate marks.

**Q1 Answer the following questions : (2 x 10)**

- a) What is cardinality ratio? How can you find out the arity of a table? (2)
- b) Determine integrity rules exist in DBMS. (2)
- c) Differentiate between generalization and specialization. (2)
- d) Define System Catalog. (2)
- e) Find the difference between 'Cluster' and 'Non-cluster' index. (2)
- f) State metadata. (2)
- g) Why BCNF is known as relaxed form of 3NF? (2)
- h) Since every conflict-serializable schedule is view serializable, why do we emphasize conflict serializability rather than view serializability? (2)
- i) Why concurrency control is needed? (2)
- j) What is Query evaluation engine? (2)
- Q2 a) What are the factors of DBMS? Explain data independence in 3-levels of data abstraction. (5)**
- b) Compare hierarchical and network database model? Write the steps needed to convert E-R model into Relational table. (5)
- Q3 a) Design an E-R diagram for banking system. Find out all the relations, strong entity, weak entity, Primary Key. (5)**
- b) Explain types of keys and disjoint, overlapping constraints used in E-R model. (5)
- Q4 a) Analyze how different states of a transaction define that it is being executed or not? (5)**
- b) What are the various locking methods used in Data Security? (5)
- Q5 a) What do you understand by query optimization? Formulate the steps needed to optimize a high level query? (5)**
- b) Explain cascade less schedule with an example. (5)

**Q6** Enlist the advantages of normalizing database. Consider the following relation **(10)**  
R (A,B,C,D,E) and functional dependencies  $F = \{ A \rightarrow BC, C \rightarrow A, D \rightarrow E, F \rightarrow A, E \rightarrow D \}$  & decomposed R into R1(A, C, D), R2(B, C, D) and R3(E,F,D). Is it lossless or not?

**Q7** Briefly describe about the different types of data base recovery techniques. **(10)**

**Q8** **Write short answer on any TWO :** **(5 x 2)**

a) Explain the types of data ware house and the steps needed to build a data ware house.

b) Determine the properties of a transaction.

c) OLAP vs OLTP