(Please write your Exam Roll No.) Exam Roll No. .....

END TERM EXAMINATION

FOURTH SEMESTER [B.TECH.] MAY-JUNE 2016

Paper Code: ETCS-208 **Subject: Database Management System**

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt any five questions including Q no.1 which is compulsory.

Q1 Define the following (Give example where necessary):- (10x2.5=25)

(a) Multivalued dependency
(b) Dependency preservation
(c) Functional dependency
(d) Referential integrity
(e) Internal schema
(f) Candidate key
(g) Triggers
(h) DBA
(i) Weak entity
(j) Foreign key

Q2 (a) Differentiate between the term Generalization and Specialization with example. (6.5)
(b) Differentiate between Fragmentation, Replication and Transparency. (6)

Q3 (a) Define closure of FD set. For the following relation
R (A, B, C, D)
With FDs as follows:-
(i) AB→ C
C→ A
BC→ D
ACD→ D
D→ EG
BE→ C
CG→ BD
CE→ AC
Find the closure of (B, D) and (C, A). (6.5)
(b) What is canonical cover? How it is computed? (6)

Q4 (a) Explain the "ACID" properties in brief. (6)
(b) What do you mean by serializability. Discuss the conflict serializability and view serializability with examples. (6.5)

Q5 (a) Draw and explain a neat diagram of three level architecture of database system. (6)
(b) Construct an ER diagram for 'Hospital management system'. There would be a set of patients and set of doctors. For each patient, there would be a log of various tests and examinations conducted. Make assumptions if necessary and clearly state them. (6.5)

Q6 (a) How the B+ tree index files are maintained? Explain. (6)
(b) Explain the method of "query processing" in brief. (6.5)

Q7 (a) Discuss clearly inner join, outer join and theta join with example. (6)
(b) For the relation R=(A, B, C) and S= (D, E, F) and relation r(R) and s(s), give SQL statement for following expressions and explain. (6.5)
(i) $\pi_A(r)$

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(ii) $\sigma_B = 17(r)$
(iii) $r \times s$
(iv) $\pi_{A,F}(\sigma_{C=D}(rXs))$

(2x6.25= 12.5)

Q8 Attempt **any two-**

(a) How the deadlock is detected in transactions? Explain its recovery process also.

(b) Normalize the following relation to as much as possible citing the reasons and anamoloies.
R (emp-no, name, street, city, compangname, company-city, manager-name, age, salary, marital-status, spouse-name)

(c) State the mulit-version time stamp based protocol. Suggests a scheme to avoid the phantom phenomenon.

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