

Roll No.

2113

B. E. (4th Sem.) (I. T.)

Examination – December, 2011

DATABASE MANAGEMENT SYSTEMS

Paper : CSE-202-E

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Discuss the advantages of DBMS over file processing system. 10
- (b) Differentiate between : 10
 - (i) DDL, DCL, DML
 - (ii) Procedural and non-procedural DML,
 - (iii) Logical and Physical independence.

2. (a) Discuss about various types/levels of architecture. 10

(b) Describe about mapping constraints and key constraints using some suitable examples. 10

3. What do you mean by file organization ? Discuss various types of file organization. 20

4. (a) Let the following relation schemes be given :

$R = (A, B, C)$ and $S = (D, E, F)$.

Let relation of $r(R)$ and $r(S)$ be given. Give an expression in the tuple relational calculus that is equivalent to each of the following : 10

(i) $\pi_A(r)$

(ii) $\sigma_{B=5}(r)$

(iii) $r \times s$

(iv) $\pi_{A,F}[\sigma_{C=D}(r \times s)]$

(b) Explain about ACID properties of a transaction. 10

5. What do you mean by Normalization ? Discuss various normalization with the help of suitable examples. 20

6. (a) Suppose that we decompose the scheme $R = (A, B, C, D, E)$ into (A, B, C) and (A, D, E) . Show that this decomposition is a lossless join decomposition if the following set F of functional dependencies holds : $A \rightarrow BC$, $CD \rightarrow E$, $B \rightarrow D$ and $E \rightarrow A$. 10

(b) Discuss various operators in relational algebra with the help of examples. 10

7. (a) Discuss about the concept of parallelism in database with their advantages and disadvantages. 10

(b) Discuss about recovery system, its steps and precautions taken in case of database failure. 10

8. Write short notes on any *two* of the following :

$10 \times 2 = 20$

(a) E-R Diagram,

(b) Relational Model,

(c) SQL,

(d) Data warehousing.