No. of Printed Pages : 4

MCS-207

POST GRADUATE DIPLOMA IN COMPUTER APPLICATION (PGDCA-NEW)

Term-End Examination

June, 2024

MCS-207 : DATABASE MANAGEMENT SYSTEMS

Time : 3 Hours *Maximum Marks : 100*

Weightage : 70%

Note :– Question No. 1 is compulsory and carries 40 marks. Attempt any *three* questions from Question No. 2 to Question No. 5.

1. (a) Compare and contrast the traditional file based system with database approach. 5

   (b) Explain the desirable properties of decomposition of a relation with the help of

P.T.O.

an example. 5

(c) What is query processing ? List the basic steps in query processing. 5

(d) What are the limitations of Relational Databases ? Explain the need for object oriented Databases. 5

(e) Explain the following basic relational operations with the help of an appropriate examples for each : 10

(i) SELECTION

(ii) PROJECTION

(iii) CARTESIAN PRODUCT

(iv) JOIN

(f) Design an ER-diagram for the specifications to maintain any *Hospital*. Clearly indicate the entities, attributes, primary key, constraints, relationships and cardinality. 10

2. (a) Explain the physical DBMS architecture with the help of a neat diagram. 10

   (b) Explain any FOUR (4) commands of DML with suitable example for each command. 8

   (c) What is the use of sequential file organization ? 2

3. (a) Explain entity integrity and referential integrity constraints of a relation with the help of a suitable example. 6

   (b) Explain the third normal form and BCNF with the help of an example. 7

   (c) Why do we need indexes ? Explain the following :

   (i) Primary index

   (ii) Clustering index

   (iii) Secondary index 7

4. (a) What is a transaction ? Explain properties of a transaction with an example. 7

   (b) Why do we need database recovery ?

Compare and contrast Backward Recovery and Forward Recovery. 6

(c) What is Hash-Join ? Explain the cost calculation for simple Hash-Join. 7

5. Write short notes on the following : 5×4=20

   (i) Multi-list file organization

   (ii) Second normal form

   (iii) Serialisable schedule

   (iv) Data warehouse

***