

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)**

Term-End Examination

June, 2014

00954

BICS-011 : DATABASE MANAGEMENT SYSTEM

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **seven** questions.

1. (a) Define DBMS. Categorize various types of databases that may exist in an organisation. 5
(b) Explain Primary Indexing and Secondary Indexing. 5

2. What is EER model ? Construct an ER-diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted (Justify your placement of attributes). 2+8=10

3. (a) Explain the distinctions among the terms primary key, candidate key and super key. 5
(b) Define the concept of Generalisation and Specialisation. 5

4. (a) Explain the term Referential Integrity, with an example. 5
- (b) What are different relational algebra operations ? Explain each. 5
- 5 (a) What are DDL and DML commands ? Explain with example. 5
- (b) What is a view ? What are its advantages ? Explain the syntax for creating views. 1+2+2
6. (a) Define FD. What do you mean by non-trivial and trivial FD ? 5
- (b) Given : $A \rightarrow B, BC \rightarrow D, C \rightarrow E, CD \rightarrow F$
Find closure of $(A, C)^+$. 5
7. (a) What are the rules for decomposing a relation ? Explain. 5
- (b) Explain 3NF and BCNF with appropriate examples. Prove BCNF is stronger than 3NF. 3+2
8. (a) What is a transaction ? Explain ACID properties with an example. 1+4
- (b) Define Serializability. Differentiate conflict and view serializability. 1+4
9. (a) What is a lock ? Explain the different types of locks. 1+4
- (b) What is a deadlock ? How are deadlocks prevented ? 1+4

10. Write short notes on any *two* of the following : *2×5=10*

- (a) Optimistic concurrency control
 - (b) Database recovery
 - (c) Database security
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