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Roll No.

333553(33)

B. E. (Fifth Semester) Examination, April-May 2021

(New Scheme)

(IT Engg. Branch)

DATABASE MANAGEMENT SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) is compulsory from each questions. Attempt any two parts from (b), (c) and (d).

Unit-I

1. (a) Define DBMS.

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- (b) What are main differences between a file processing system and a DBMS? 7
- (c) Explain various difference between B- tree and B+ tree. 7
- (d) Explain Specialization and Generalization with example. 7

Unit-II

2. (a) What is Weak Entity? Explain. 2
- (b) Consider following Database Schema for a Employee-pay scenario
- employee(emp_id : integer, emp_name: string)
- demartment(dept_id: integer, dept_name:string)
- paydetails(emp_id : integer, dept_id: integer, basic: integer, deductions: integer, additions: integer, DOJ: date)
- payroll(emp_id : integer, pay_date: date)
- For the above schema, perform the following :
- (i) List the employee details department wise.

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- (ii) List all the employee names who joined after particular date.
 - (iii) List the details of employees whose basic salary is between 10,000 and 20,000.
 - (iv) Give a count of how many employees are working in each department. 7
- (c) Explain basic relation algebra operators with example. 7
- (d) Short notes on Views and Triggers. 7

Unit-III

3. (a) What is Normalization? 2
- (b) Explain functional dependency with examples. Also explain inference rules for functional dependencies. 7
- (c) Discuss insertion, deletion and modification anomalies. Why are they considered bad? Illustrate with examples. 7
- (d) Compare BCNF and 3NF with examples. 7

Unit-IV

4. (a) What is Deadlock? 2
- (b) Explain ACID properties with example. 7
- (c) Explain conflict serializability and view serializable with example. 7
- (d) Explain Structure of Query Optimizer. 7

Unit-V

5. (a) What do mean by Checkpoint? 2
- (b) How shadow paging is better than shadow database technique to recover data? Explain. 7
- (c) Explain deferred log based scheme & immediate log based scheme. 7
- (d) Describe Time stamp ordering protocol in detail. 7