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Roll No. : .....

**333611(33)**

**B. E. (Sixth Semester) Examination 2020**

**(Old Scheme)**

**(Branch : IT)**

**DATABASE MANAGEMENT SYSTEM**

***Time Allowed : Three hours***

***Maximum Marks : 80***

***Minimum Pass Marks : 28***

***Note : Part (a) is compulsory and contains 2 marks.***

***Part (b), (c) and (d) contains 7 marks each.***

***Attempt any two parts out of (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 DBMS?
- (c) Explain various difference between B –tree and B +tree.
- (d) Explain specialization and generalization with example.

### Unit - II

2. (a) What is Weak Entity? Explain.
- (b) Consider following database schema for a employee scenario :
- employee (emp\_id : integer, emp\_name : string)
  - department (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.
  - (ii) List all the employee names who joined after particular date.

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- (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.
- (c) Explain basic relation algebra operators with example.
- (d) Short notes on Views and Triggers.

### Unit - III

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

### Unit - IV

4. (a) What is deadlock?
- (b) Explain ACID properties with examples.

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- (c) Explain conflict serializability and view serializable with example.
- (d) Explain structure of Query Optimizer.

### Unit - V

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