

(Please write your Exam Roll No.)

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## END TERM EXAMINATION

SECOND SEMESTER [BCA] MAY 2018

Paper Code: BCA 110

Subject: Database Management System

Time : 3 Hours

Maximum Marks : 75

**Note: Attempt any five questions including Q. No.1 which is compulsory.**

- Q1. Answer the following: (5x5=25)
- Draw and explain the architecture of DBMS. Compare it with file system.
  - Explain the role of E-R model in database design.
  - How can the two tables be joined using left outer and right outer joins?
  - What problems are encountered if data is not stored in normalized table?
  - List the problems associated with two phase locking protocol.
- Q2. a) Discuss the advantages and disadvantages of DBMS. (6.5)  
b) Why is relation database approach better than earlier methods? (6)
- Q3. a) Construct an E-R diagram for a hospital management system with a set of doctors and a set of patients. With each patient, a series of various tests and examinations are conducted. On the basis of preliminary report patients are admitted to a particular specialty ward. (6)  
b) Construct appropriate tables for the above E-R diagram. (6.5)
- Q4. a) Explain the differences among external, internal and conceptual schemas. (4.5)  
b) Related with database, explain the following terms: (8)  
i) Data integrity ii) Concurrency iii) Data independence  
iv) Referential integrity
- Q5. Consider the following relational schema: (2.5x5=12.5)  
Emp (empno, ename, job, sal, comm., hiredate, deptno)  
Dept (deptno, dname, location)  
Give an expression in SQL for the following Queries:  
a) Find the names of employees who work in deptno 10 and 20.  
b) Increase the salary by Rs 1500 for the employees who are 'CLERK'.  
c) Display the details of employees who work in same deptno as of the employee 'SMITH'.  
d) Create the table Dept.  
e) Display total salary of employees of each deptno and display those deptno whose total salary is more than Rs. 30000.
- Q6. Differentiate between: (2.5x5=12.5)  
a) Primary Key and Foreign Key  
b) View and Indexes  
c) Serializable and non serializable transactions  
d) 2NF and 3CNF  
e) Data and Metadata
- Q7. a) Explain the CODD's rules of RDBMS. (6)  
b) Discuss the timestamp ordering techniques for concurrency control. (6.5)
- Q8. a) Discuss the different types of transaction failures that may occur in database environment. (5)  
b) What is checkpoint? Explain the different recovery techniques when database crashes. (7.5)

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