BCA 3rd Semester (Honours) Examination, 2021
BACHELOR OF COMPUTER APPLICATION

Course ID : 33312 **Course Code : BCA-CC-06**

Course Title : Database Management Systems

Time : 3 Hours **Full Marks : 80**

The figure in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group-A

1. **Answer all the questions from the following.** **(10 X 1 = 10)**

i. The term attribute refers to a _____ of a table.

a) Record b) Column c) Tuple d) Key e) None of these

ii. Which one of the following attribute can be taken as a primary key?

a) Name b) Street c) Id d) Department e) None of these

iii. Which one of the following is a procedural language?

a) Domain relational calculus b) Tuple relational calculus c) Query language d) Relational algebra e) None of these

iv. **SELECT** * **FROM** employee

What type of statement is this?

a) DML b) DDL c) View d) Integrity constraint e) None of these

v. Which of the following is not an aggregate function?

a) Avg b) Sum c) Max d) Min e) None of these

vi. To include integrity constraint in an existing relation use :

a) Create table b) Modify table c) update table d) Drop table e) None of these

vii. Which of the following is used to store movie and image files?

a) Clob b) Blob c) Binary d) Image e) None of these

viii. Relational Algebra is a _____ query language that takes two relations as input and produces another relation as an output of the query.

a) Procedural b) Structural c) Relational d) Fundamental e) None of these

ix. The assignment operator is denoted by

a) -> b) == c) = d) <- e) None of these

x. The tuples of the relations can be of _____ order.

a) Sorted b) Same c) Any d) Constant e) None of these

Group-B

2. **Answer <u>any ten</u> questions from the following.** **(10 X 2 = 20)**

i. What is DBMS?

ii. What are the advantages of DBMS?

iii. Describe the three levels of data abstraction?

iv. What is Data Independence?

v. What is E-R model?

vi. What is Weak Entity set?

vii. What is DDL (Data Definition Language)?

viii. What is Relational Algebra?

ix. What is Generalization and Specialization?

x. What is Lossless join property?

xi. What do you mean by flat file database?

xii. What is database Trigger?

xiii. What is a cascading update?

xiv. What are the major functions of the database administrator?

xv. What are insertion and deletion anomalies?

Group-C

3. Answer <u>any four</u> questions from the following. **(5 X 4 = 20)**

i. Define Data dictionary? Define view? 3 + 2 = 5

ii. What is star schema? 5

iii. What is the multi-valued Attribute? Why it is used? Explain with an example. 2 + 2 + 1 = 5

iv. Write any two differences between DROP and TRUNCATE commands. Write syntax of a table creation of SQL. 3 + 2 = 5

v. What is E-R model in DBMS? Give four benefits of E-R model. 3 + 2 = 5

vi. Write the steps to design a database. 5

Group-D

4. **Answer <u>any three</u> questions from the following.** **(10 X 3 = 30)**

i. Discuss the components of a database. Write the steps to design a database. 6 + 4 = 10

ii. What is Normalization? Give rules for a table to be in 1st normal form and 3rd normal form. What are the DBMS anomalies you know, explain each of them with example? 2 + 5 + 3 = 10

iii. Give symbols with their name used in E-R model. Draw an Entity Relationship diagram for a college management system. 4 + 6 = 10

iv. Consider the following table and answer the following queries: 2 X 5 = 10

employee (emp_no, emp_name, DOB, address, doj, mobile_no, dept_name, salary).

a. Find out the employee details who earn more than 40000.
b. Find out the employee details who works in IT Department and draw salary less than 20000.
c. Find out the employee's mobile no who lives in Bankura.
d. Give a 15% increment to HRA Department Employee.
e. Find out Average salary of Accounts department employee.

v. Write down the queried for the following relational algebra. 2 X 5 = 10

a. σ topic = "Database" (Tutorials)
b. σ topic = "Database" and author = "guru99"(Tutorials)
c. σ Salary > 15000 (Company)
d. $R_{User.OccupationId=Occupation.OccupationId}$(User X Occupation)
e. $P_{Name}(R_{Age>25}(User))$

vi. Write short note any four 2½ X 4 = 10

a. Primary Key. b. Object oriented Data Model. c. Candidate Key d. OLAP e. Functional Dependency
f. Distributed Database Model.

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