ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE
I SEMESTER EXAMINATION, OCTOBER 2018
M.SC IN BIG DATA ANALYTICS
BDA 1516: DATABASE MANAGEMENT

TIME 2.5 HRS   **MAX MARKS 70**

THIS QUESTION PAPER CONTAINS TWO PRINTED PAGES AND TWO PARTS

PART- A

ANSWER ALL QUESTIONS   **(2 X 10=20)**

1. List any four functionalities of DBMS.
2. Define schema and instances.
3. How logical data independence is different from physical data independence?
4. What is Catalogue?
5. What is indexing?
6. Explain any two commands of DDL in RDBMS.
7. What do you mean by 1NF (first normal form) in DBMS?
8. Define timestamp.
9. What is distributed database?
10. Explain deadlock.

PART-B

ANSWER ANY FIVE QUESTIONS   **(5 X10=50)**

1. Draw and briefly explain about database system architecture.
2. What are the responsibilities of a DBA?
3. Explain the importance of having Parallel and distributed computing in DBMS.
4. Suppose you are given the following requirements for a simple database for the National Hockey League (NHL):
   - The NHL has many teams,
   - Each team has a name, a city, a coach, a captain, and a set of players,
   - Each player belongs to only one team,
   - Each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records,
   - A team captain is also a player,

- A game is played between two teams (referred to as host team and guest team) and has a date and a score.

Construct EER diagram with cardinalities.

5. Write the difference between specialisation and generalisation.

6. The given database Schema is

Employee(FName, Initial, Lname, ENO ,DOB, Address, Sex, Salary, Supereno,Dno)

Department(Dname, Dnumber , mgreno, mgrstartdate)

Dept_locations(Dnumber, Dlocation)

Project(Pname, Pnumber ,plocation, dnum)

Works_on(EENO, PNo, hours)

Dependent(EENo, Dependent_Name, Sex, BDate, Relationship)

Write the queries in relational algebra with the above schema

a)Retrieve the name and address of all employees who work for the 'Researchdepartment'.   (2)

b)List the project numbers for projects that involve an employee whose lastname is 'Kumar', either as a worker or as a manager of the department thatcontrols the project.   (2)

c)For each department, retrieve the department name and the average salary of all employees working in that department.   (3)