



Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India

(Autonomous College Affiliated to University of Mumbai)

End Semester Examination
August 2023

Course Name: Data Base Management System
Class: S.Y.BTech
Branch: COMP/CSDS/AIML

Course Code: CE204/DS204/AI204
Max. Marks: 100
Semester: III

Instruction:

- (1) All questions are compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary
- (4) Mention the question number clearly while writing the answer

QNo	Question	Marks	CO
Q1a	Consider the simple database for Indian Premier league and draw entity relationship diagrams considering a major entity involved and relationship among them.	10	1
Q1b	Describe database management system? Explain characteristics of databases and role of database administrator?	10	1
Q2a	Explain the terms Super Key, Candidate Key, Primary Key, Foreign Key along with suitable examples?	10	1
Q2b	Consider the following relation. Dealer (Dealer_no, Name, city) Part (Part_no, P_name, color, Quantity) Assigned-to (Dealer_no, Part_no, cost) Write the following query in relational algebra. 1) Find the name of all dealers who belong to the city "pune". 2) Find name and city of all dealers who supplied more than 100 part for part_no=101 3) Find color of part for part number 789. 4) Find list of all dealers 5) Find details of part supplied by dealer "Ram"	10	2

	OR		
	<p>Write Relational Algebra Queries for the given database.</p> <p>sailor(sid,sname, rating,age)</p> <p>boat(bid,bname,color)</p> <p>reserves(sid,bid,date)</p> <ol style="list-style-type: none"> 1) Find the names of the sailors who have reserved the black boat. 2) Find the sailor name with highest rank 3) find the average age of the sailor 4) find the youngest age of the sailor for each rating level 5) Find distinct colors of the boats. 		
3a	<p>Define Third normal form.</p> <p>Consider the following relation R and normalize it up to third normal form.</p>	02 08	3
3b	Explain concept of functional Dependency.	10	3
4a	<p>What is the effect of deadlock? How it is detected? Discuss different types of deadlock avoidance scheme.</p> <p>OR</p> <p>Discuss Timestamp Based protocol with example.</p>	10	4
4b	<p>Consider the following schedule.</p> <p>T1: r(x), T2: r(z), T1: r(z), T3: r(x), r(y), T1:w(x), T3:w(y), T2:r(y),w(z),w(y)</p> <ol style="list-style-type: none"> 1. Draw precedence graph. 2. Is schedule conflict serializable? Find respective serial schedule. 3. Find the view serializable? 	02 04 04	4
Q5a	Explain various steps involved in query processing and optimization?	10	5
Q5b	Mongodb is which type of NoSQL database explain various CRUD operations on Mongodb?	10	5