MALLA REDDY UNIVERSITY
(Telangana State Private Universities Act No. 13 of 2020 &
G.O.Ms.No. 14, Higher Education (UE) Department)
Maisammaguda, Kompally,
Hyderabad - 500100,
Telangana State.

QBANK for AI&ML/CSE / DS / CS / IoT / IT

Subject Name: **Professional Development Skills** Regulations: **R22**
Subject Code: **MR22-1SK0101**

Q.NO	QUESTION	MARKS	SECTION	UNIT
1	Implement a program for given an integer array nums, move all 0's to the end of it while maintaining the relative order of the non-zero elements. Note that you must do this in-place without making a copy of the array. Example 1: Input: nums = [0,1,0,3,12] Output: [1,3,12,0,0]	8	Section-I	**1**
2	Program to print Hollow Star Pyramid using any programming language. 	8	Section-I	**1**
3	Implement a program to Count the Occurrences of Each Word in a String using any programming language.	8	Section-I	**1**
4	Implement a program for given an array *'a'* of size *'n'*-1 with elements of range 1 to 'n'. The array does not contain any duplicates. Your task is to find the missing number. For example: Input: 'a' = [1, 2, 4, 5], 'n' = 5 Output : 3	8	Section-I	**1**
5	Implement oops concepts for Bank management system.	8	Section-I	**1**
6	Implement a Class, object and constructors with supporting program.	8	Section-I	**1**
7	Create an array using methods add new element, access the element, remove the element in array using any programming language.	8	Section-I	**1**
8	Implement a program for given an array of integers nums and an integer target, return indices of the two numbers such that they add up to target. You may assume that each input would have exactly one solution, and you may not use the same element twice. You can return the answer in any order. Example 1: Input: nums = [2,7,11,15], target = 9 Output: [0,1] Explanation: Because nums[0] + nums[1] == 9, we return [0, 1].	8	Section-I	**1**

<table>
<tr><td>9</td><td>Implement a program for given an array nums with n objects colored red, white, or blue, sort them in-place so that objects of the same color are adjacent, with the colors in the order red, white, and blue.
We will use the integers 0, 1, and 2 to represent the color red, white, and blue, respectively.
You must solve this problem without using the library's sort function.

Example 1:
Input: nums = [2,0,2,1,1,0]
Output: [0,0,1,1,2,2]</td><td>8</td><td>Section-I</td><td>1</td></tr>
<tr><td>10</td><td>Explain Exception Handling with suitable example. Also name 5 common Exceptions.</td><td>8</td><td>Section-I</td><td>1</td></tr>
<tr><td>11</td><td>Explain ACID Properties with suitable transaction example.</td><td>8</td><td>Section-II</td><td>2</td></tr>
<tr><td>12</td><td>Perform all DDL and DML commands on below customers table.
Table: customers
<table><tr><th>customer_id</th><th>first_name</th><th>last_name</th><th>phone</th><th>country</th></tr><tr><td>1</td><td>John</td><td>Doe</td><td>817-646-8833</td><td>USA</td></tr><tr><td>2</td><td>Robert</td><td>Luna</td><td>412-862-0502</td><td>USA</td></tr><tr><td>3</td><td>David</td><td>Robinson</td><td>208-340-7906</td><td>UK</td></tr><tr><td>4</td><td>John</td><td>Reinhardt</td><td>307-242-6285</td><td>UK</td></tr><tr><td>5</td><td>Betty</td><td>Taylor</td><td>806-749-2958</td><td>UAE</td></tr></table></td><td>8</td><td>Section-II</td><td>2</td></tr>
<tr><td>13</td><td>Differentiate between delete, drop and truncate commands and perform the same on given customers table.
Table: customers
<table><tr><th>customer_id</th><th>first_name</th><th>last_name</th><th>phone</th><th>country</th></tr><tr><td>1</td><td>John</td><td>Doe</td><td>817-646-8833</td><td>USA</td></tr><tr><td>2</td><td>Robert</td><td>Luna</td><td>412-862-0502</td><td>USA</td></tr><tr><td>3</td><td>David</td><td>Robinson</td><td>208-340-7906</td><td>UK</td></tr><tr><td>4</td><td>John</td><td>Reinhardt</td><td>307-242-6285</td><td>UK</td></tr><tr><td>5</td><td>Betty</td><td>Taylor</td><td>806-749-2958</td><td>UAE</td></tr></table></td><td>8</td><td>Section-II</td><td>2</td></tr>
<tr><td>14</td><td>Explain Purpose of Normalization and issues in row level and column level with suitable example.</td><td>8</td><td>Section-II</td><td>2</td></tr>
<tr><td>15</td><td>Explain Different keys with suitable example.</td><td>8</td><td>Section-II</td><td>2</td></tr>
<tr><td>16</td><td>Perform Aggregation functions in SQL for below given table.
<table><tr><th>Product name</th><th>Product category</th><th>Sales</th></tr><tr><td>American Giant Hybrid</td><td>Sunflower</td><td>90,000</td></tr><tr><td>Carolina Rose</td><td>Rose</td><td>85,000</td></tr><tr><td>Curly Leaf Daisy</td><td>Daisy</td><td>50,000</td></tr><tr><td>Eastern Purple Cornflower</td><td>Daisy</td><td>55,000</td></tr><tr><td>Hybrid Musk</td><td>Rose</td><td>40,000</td></tr><tr><td>Little Becka</td><td>Sunflower</td><td>22,000</td></tr><tr><td>Moulin Rouge</td><td>Sunflower</td><td>92,000</td></tr><tr><td>Osteospermum Daisy</td><td>Daisy</td><td>55,000</td></tr><tr><td>Rosa Glauca</td><td>Rose</td><td>65,000</td></tr><tr><td>Suntastic Yellow</td><td>Sunflower</td><td>35,000</td></tr></table></td><td>8</td><td>Section-II</td><td>2</td></tr>
<tr><td>17</td><td>Perform the Joins (inner, full outer, left, right, cross and self) on below customers and orders table.</td><td>8</td><td>Section-II</td><td>2</td></tr>
</table>

	Customer custNo | cname | City 11 | Sara | Doha 22 | Fatma | Doha 33 | Omar | Khor 44 | Ali | Shimal 55 | Hassan | Khor Orders OrderNo | Odate | CustNo | Ord_amt 21 | 03-04-02 | 11 | 10000 22 | 09-03-04 | 22 | 11000 23 | 23-01-01 | 33 | 14000 24 | 11-08-08 | 44 | 16000 25 | 06-10-10 | 55 | 20000			
18	Explain the view and create the view on customer table. Table: customers customer_id | first_name | last_name | phone | country 1 | John | Doe | 817-646-8833 | USA 2 | Robert | Luna | 412-862-0502 | USA 3 | David | Robinson | 208-340-7906 | UK 4 | John | Reinhardt | 307-242-6285 | UK 5 | Betty | Taylor | 806-749-2958 | UAE	8	Section-II	2
19	Differentiate between Clustered Indexes and non-Clustered Indexes in SQL.	8	Section-II	2
20	Write short note on (i) stored procedure (ii) Triggers(iii) Cursors .	8	Section-II	2
21	Explain the concept of variables in C programming. How do variables differ across different data types? Provide a case study to illustrate the use of variables in memory management.	8	Section-I	1
22	What are constants in C programming, and how do they differ from variables? Discuss the importance of constants with examples from a real-world scenario, showing where constants improve code reliability	8	Section-I	1
23	Define keywords in the context of python programming languages. Explain why certain words are reserved as keywords and discuss the potential consequences of using them incorrectly in code.	8	Section-I	1
24	Compare and contrast the different types of loops in python (for,while) with examples. Discuss scenarios where each loop type is most efficient.	8	Section-I	1
25	Describe the core principles of object-oriented programming (encapsulation, inheritance, polymorphism, and abstraction) in Java. Use examples to explain how these concepts are applied in a case study.	8	Section-I	1
26	Define arrays and explain their significance in storing data. Discuss the types of arrays (single-dimensional, multi-dimensional) with examples to illustrate each type	8	Section-I	1

27	Describe the concept of recursion in python with an example of the factorial or Fibonacci series. Discuss the pros and cons of recursion.	8	Section-I	1
28	Discuss how inheritance can be implemented in Java with an example from a real-world scenario. Describe the parent class and derived class, and illustrate how properties and methods are shared or extended	8	Section-I	1
29	Define polymorphism and explain its types (compile-time and runtime). Use a Java example to demonstrate method overriding and method overloading in the context of a case study (such as an e-commerce application or school management system).	8	Section-I	1
30	Given a scenario (e.g., library management), explain how you would design abstract classes and interfaces. Highlight how abstraction helps manage complexity and improves code reusability.	8	Section-I	1
31	Discuss the use of conditional statements (if, else) in decision- making in Java programming. Provide examples showing how they handle different conditions and the role of nesting in complex decision structures	8	Section-II	2
32	Explain how exception handling works in nested structures in Java. Provide an example of exception handling within a multi- level program structure and discuss its importance in maintaining code reliability.	8	Section-II	2
33	Explain the ACID properties (Atomicity, Consistency, Isolation, Durability) in database transactions. Discuss with a case study how each property ensures data integrity in financial applications.	8	Section-II	2
34	Explain the concept of sub-queries in SQL with examples. Discuss the advantages and disadvantages of using sub-queries versus joins for data retrieval	8	Section-II	2
35	Describe the role of views in SQL. Using a case study, illustrate how views can simplify complex queries and enhance datasecurity by restricting access to sensitive information	8	Section-II	2
36	Describe how indexes improve query performance in databases.With an example, discuss the trade-offs of indexing in terms of speed, storage, and data modification efficiency	8	Section-II	2
37	Explain the purpose of procedures and functions in PL/SQL.Using a case study, demonstrate how these structures can be used to encapsulate and reuse business logic in an application	8	Section-II	2
38	Define triggers in SQL and explain their purpose. Discuss the types of triggers (BEFORE, AFTER, INSTEAD OF) with examples showing their applications in data validation or auditing.	8	Section-II	2
39	Explain the concept of triggers in SQL with examples. Using a case study, illustrate how triggers can be used to automate actions in response to database events and enforce complex business rules	8	Section-II	2
40	What are cursors in PL/SQL, and why are they used? Explainthe types of cursors (explicit and implicit) with examples demonstrating their use in handling multi-row query results	8	Section-II	2
41	What are some strategies to manage and improve your own body language during group discussions?	8	Section-III	3

42	Generate ten points for the topic to present in GD: Impact of technology on learning.	8	Section-III	**3**
43	List out 5 do's and 5 don'ts to be followed in GD	8	Section-III	**3**
44	Mention five of your behavioural strengths and weaknesses.	8	Section-III	**3**
45	List down 10 points on the topic "Is technology making us less human" to present in group discussion.	8	Section-III	**3**
46	Prepare your CV for submitting to a start-up Indian company for the position of software developer with a package of 5 LPA.	8	Section-III	**3**
47	Draft an email to a vendor to request a quote for services.	8	Section-III	**3**
48	Prepare your SWOT analysis for admission into Post-Graduation (M.Tech) in one of the top colleges through GATE. List at least 3 of your strengths, weaknesses, opportunities and threats.	8	Section-III	**3**
49	Write two different conclusions on the topic "Is Artificial Intelligence a threat to the traditional jobs".	8	Section-III	**3**
50	Describe the importance of non-verbal and verbal communication in Group Discussion.	8	Section-III	**3**
51	What is management? Explain its functions.	8	Section-IV	**4**
52	Explain the role of manager for the development of organization.	8	Section-IV	**4**
53	What are the various methods of demand forecasting? Explain	8	Section-IV	**4**
54	Briefly explain a) managerial roles b) Cost – Out relation ship	8	Section-IV	**4**
55	Explain about the decisions of group problem solving	8	Section-IV	**4**
56	Write about the creativity and innovation in managerial works.	8	Section-IV	**4**
57	Explain the leadership with their power and authority.	8	Section-IV	**4**
58	Define Leadership. Explain various types of leadership styles	8	Section-IV	**4**
59	Describe the leadership during adversity and Crisis.	8	Section-IV	**4**
60	How to handle employee and customer complaints in Corporate World.	8	Section-IV	**4**
61	Write an email requesting a meeting with your manager.	8	Section-V	**5**
62	Draft an email to a colleague asking for assistance on a project.	8	Section-V	**5**
63	Compose an email to a client to follow up on a recent discussion.	8	Section-V	**5**
64	Write an email to a potential employer to follow up on a job application.	8	Section-V	**5**
65	Analyse your SWOT for the situation: Your immediate goal after B.Tech completion is studying Masters in the U.S.A. but your parents compel you to do a job. Do your SWOT analysis in such a way that your parents would sponsor for the abroad studies.	8	Section-V	**5**
66	Draft a CV for yourself to apply for a software developer job.	8	Section-V	**5**
67	List out your Achievements, Technical Skills and Personality traits to be included in your CV as per the prescribed format, for the position of software developer.	8	Section-V	**5**
68	Prepare a CV for the following job description: Opening for the positions: Business Analyst/Data Scientist/Full Stack Developer/AI Engineer/Cyber Security Solution Engineer. 1. Qualification: B.Tech in respective Engineering specialization with minimum CGPA of 7 2. Excellent Communication Skills 3. Ability to work in teams	8	Section-V	**5**

69	What are your opportunities and threats for getting a job in an MNC with a minimum package of INR 10 LPA? Further justify how you would overcome your weaknesses so that you can enrich your strengths.	8	Section-V	**5**
70	Write an email to HR to inquire about the company's leave policy.	8	Section-V	**5**