GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER – III • EXAMINATION – SUMMER 2018

Subject Code: 3630002   **Date: 18-May-2018**

Subject Name: Basic Computer Science-1

Time: 02.30 pm to 5.00 pm   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Do as directed:	**07**
		1. Define Abstract Data type.	
		2. What are primitive data structures? Explain with example	
		3. Explain space complexity?	
		4. What is circular queue?	
		5. Define sequential list.	
		6. Which are the types of statements in SQL?	
		7. Explain keywords: Alter, Dual in SQL.	
	(b)	1. Explain decision table in data structure.	**03**
		2. Write an algorithm to PUSH and POP in stack	**04**
Q.2	**(a)**	Convert following infix expression to postfix A ^ B * C – D + E / F / (G + H)	**07**
	(b)	Write and explain an algorithm for selection sort.	**07**
		OR	
	(b)	Differentiate recursion and iteration with examples.	**07**
Q.3	**(a)**	Explain link list. What are the main advantages of linked list over arrays in representing a group of items?	**07**
	(b)	Explain bubble sort algorithm for sorting with example. Give complexity analysis of bubble sort.	**07**
		OR	
Q.3	**(a)**	What is circular link list? Explain process of insertion of node in circular link list with algorithm or program.	**07**
	(b)	Explain heap sort algorithm with example data	**07**
Q.4	**(a)**	What are data constraints? How to apply it in database? Explain with example	**07**
	(b)	Write a brief note on Database life cycle.	**07**
		OR	
Q.4	**(a)**	Write a short note on granting and revoking privileges in SQL.	**07**
	(b)	Explain database design strategies	**07**
Q.5	**(a)**	Explain following with example query: create a table, insert data into table, delete data from table, sort data in table, create table from other table.	**07**
	(b)	Write note on different types of joins in SQL	**07**
		OR	
Q.5	**(a)**	Give difference between indexes and view. Explain with example data.	**07**
	(b)	Write any seven functions used in SQL. Explain with example query	**07**

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