

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-III • EXAMINATION – SUMMER - 2017

Subject Code: 3630002

Date: 31/05/2017

Subject Name: Basic Computer Science - I (DS/SQL)

Time: 02.30 PM TO 05.00 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**
i) Give one difference between array and Linked List.
ii) State one application of stack and queue each.
iii) State pre-requisite of binary search.
iv) Give one difference between recursion and iteration.
v) When should Pointer be used?
vi) What is Abstract Data Type?
vii) List any two notations of an algorithm.
- (b)** i) Write an algorithm for the insertion sort. **04**
ii) Differentiate between Top Down and Bottom up approach. **03**
- Q.2 (a)** Write an algorithm to convert infix to postfix notation. **07**
(b) What is Stack? Write an algorithm to add and remove elements from stack using array. **07**
- OR**
- (b)** What is queue? Write an algorithm to add and remove elements from simple queue using array. **07**
- Q.3 (a)** Write an algorithm for Insertion at last and Removal of last from singly linked list. **07**
(b) Sort the following data using heap sort **07**
23 56 45 35 13 98 87 32
- OR**
- Q.3 (a)** Write an algorithm for Insertion at first and Removal of first from singly linked list. **07**
(b) Compare Selection and Bubble sort. **07**
- Q.4 (a)** Write SQL statement to perform the following Query on the table Bank_master having the field's acno, acname, balance, city, phno. **07**
1. Display all the records with acname in descending order.
2. Add one new column to store Gender (Valid Values F or M)
3. Delete all accounts having balance less than 5000.
4. Create new view Account_master on Bank_Mast.
5. List all Customers who do not stay in city Ahmedabad and Baroda
6. Find Customer having maximum balance.
7. Display the Customer name starts with "ch".
(b) Explain Data view and Business Rules with suitable example. **07**
- OR**
- Q.4 (a)** Explain order by Clause, Grant command and Self join. **07**
(b) Explain in Brief Database Design step of Database Life Cycle. **07**
- Q.5 (a)** Explain Right and Left outer join. **05**

- (b) (I) Explain Foreign Key constraint with ON DELETE CASCADE and ON DELETE SET NULL option. 05
(II) Differentiate between Delete and Truncate command. 04
- OR**
- Q.5 (a) Explain Set operators (UNION, UNION ALL, MINUS) and GRANT command. 05
(b) (I) Explain Function: SUBSTR, TO_CHAR, LPAD, ROUND, ADD_MONTHS 05
(II) Differentiate between UNIQUE and Primary Key. 04
