

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER- III EXAMINATION – WINTER 2018

Subject Code: 3630002

Date: 02-01-2019

Subject Name: Basic Computer Science-1

Time: 10.30 am to 1.00 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 Data structure.
 2. State advantages of decision table over flowchart.
 3. State applications of stack.
 4. Define primitive data structure.
 5. What is KWIC indexing?
 6. Define sparse matrix.
 7. Differentiate complete binary tree and full binary tree.
- (b)**
1. Write an algorithm to PUSH and POP in stack **04**
 2. Differentiate between Top Down and Bottom up approach. **03**
- Q.2 (a)** List the limitation of simple queue. What is circular queue? Write an algorithm for insert and delete operation in circular queue using array representation. **07**
- (b)** Differentiate recursion and iteration with examples. **07**
- OR**
- (b)** Explain binary search tree? Create binary search tree for the following elements: **07**
[50, 25, 75, 22, 40, 60, 80, 90, 15, 30]
Showing the structure after each insertion. Also give its inorder, preorder and postorder traversal.
- Q.3 (a)** What is circular link list? Explain process of insertion of node in circular link list with algorithm or program. **07**
- (b)** Write and explain an algorithm for selection sort. **07**
- OR**
- Q.3 (a)** Explain link list. What are the main advantages of linked list over arrays in representing a group of items? **07**
- (b)** Sort the following data using heap sort **07**
23 56 45 35 13 98 87 32
- Q.4 (a)** Explain order by Clause, Grant command and Self join. **07**
- (b)** Explain Logical Design, Conceptual Design and Physical Design. **07**
- OR**
- Q.4 (a)** Write a note on Database Life Cycle. **07**
- (b)** Write a short note on granting and revoking privileges in SQL. **07**
- Q.5 (a)** What are data constraints? How to apply it in database? Explain with example **07**
- (b)**
1. Explain the ALTER commands with its purpose, syntax and example. **03**
 2. Write a note on Synonym. **04**
- OR**
- Q.5 (a)** Define View. Explain readable and updatable view with suitable example. **07**
- (b)** 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**
