JUNE-2008

2008-CALICUT UNIVERSITY

B.TECH III SEMESTER DEGREE EXAMINATION

DATA STRUCTURES AND ALGORITHAM

(MECHANICAL ENGINEERING)

TIME-3HOUR
MARKS-100

ANSWER FULL QUESTIONS

SECTION A 8*5=40 MARKS

1.(a) Explain abstraction.

(b) Explain various scalar data types.

(c) Explain the Doubly linked list structure and its advantages.

(d) Explain operations on Stack.

(e) List the applications of trees.

(f) How a set is represented by a bit vector?

(g) Give algorithm for sequential search in an array.

(h) Explain closed hashing.

SECTION B 4*15=60 MARKS

2.(a) Explain the principles of good Programming practices.

(b) Write short notes on character strings,arrays and records.

Or

(c) Explain enumerated data type with example.

(d) Calculate the worst case running times of the following procedures as a function of n.

```
Procedure matmpy(n:integer);
Var i,j,k:integer;
begin for i:=1 to n do
for j:=1 to n do
begin
c[i,j]:=0;
for k:=1 to n do
c[i,j]=c[i,j]+A[i,k]*B[k,j]
end
end
```

3.(a) Explain the list implementation using pointers.Write the algorithm for insert and delete operations.

Or

(b) Explain the applications of stack in the implementation of recursive procedures in programming languages.

4.(a) Explain the representation of binary tree and its construction using Huffman algorithms.

Or

(b) Explain the methods for traversing the directed graph with example.

5.(a) What is a binary search tree?Give an example.Write the algorithm for insertion and deletion in a binary search tree.

Or

(b) Explain the insertion and selection sort algoritms.

(c) Explain searching linked list with an example.