



B. L. D. E. Association's

S. B. ARTS & K. C. P. SCIENCE COLLEGE, VIJAYAPUR

Ist

INTERNAL TEST 20 22 -20 23

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1]

① Data Base Management System is a collection of related Data and helps the user to manipulate and execute and run the Data Base.

④	<u>Strong Entity</u>	<u>Weak Entity</u>
①	Strong Entity is denoted by single Rectangle	① Weak Entity is denoted by double Rectangle.
②	Strong Entity is represented by single Diamond.	② Weak Entity is represented by Double Diamond.

⑤ Data B Model is the ^{model} Data Base which tells how the Data is present in the Data Base.

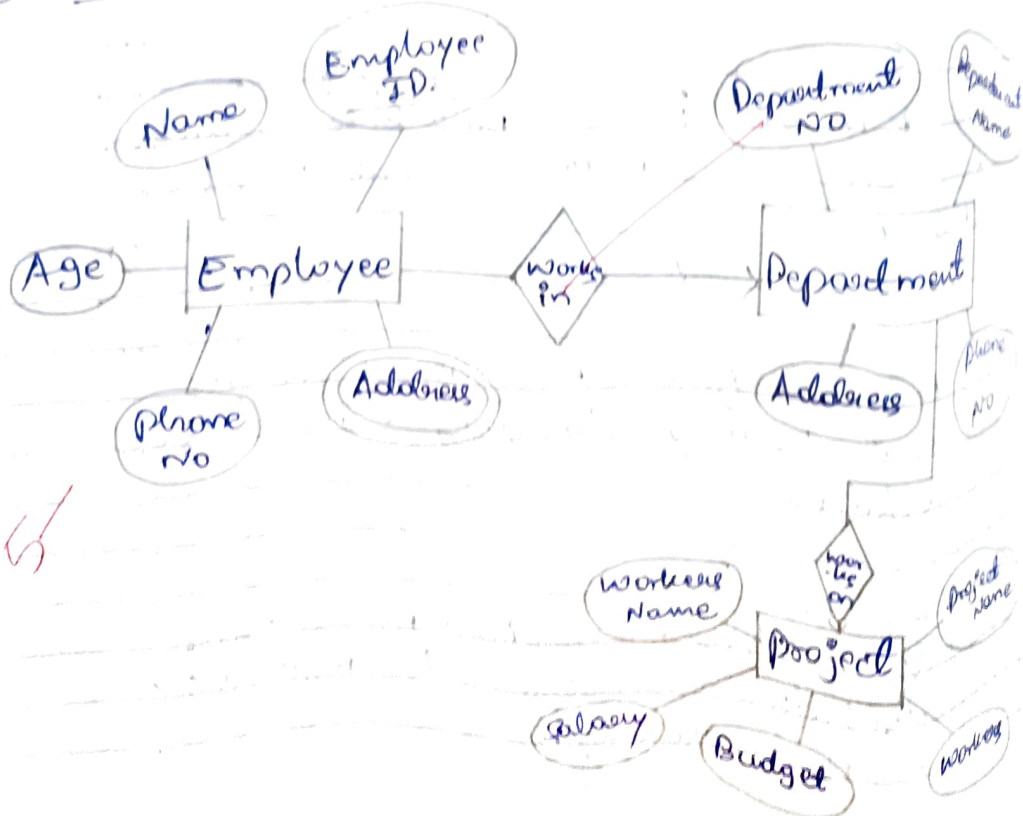
⑥ It is the interface. user use Queries without Query language. is called interface.

⑦ Entity is the Real Data Base and Attributes are used to Represent the Data clearly.

11)

- The characteristics of DBMS are:
- (i) It has the ACID property that is Atomicity, consistency, isolation, and durability. It can manipulate the data & can access it and in case of failure.
 - (ii) The DBMS has the data model to store the data in it.
 - (iii) It gives security to the data as it does not share data to anyone.
 - (iv) It is the easiest way to create data models & saves a lot of time.

8) ER Diagram of Company:



III

(iv) The Data Base Users are:

(a) Data Base Administrator: (DBA)

Data Base Administrator is the head of all the users and he creates and manipulates the Data Base.

(b) Native users: Native User is the casual user and do not have any knowledge about the Data Base.

(c) Data Base Designer: Data Base Designer Designs and gives the Data Base to next user. He uses Graphical Representation.

(d) Data Base programmer: Data Base programmer will create the programme and of Data Base and proceeds further.

(e) Sophisticated users: Sophisticated users are those they are the middle level of the Data Base and are Experts.

(f) Specialized users: Specialized users are those who needs the Data Base and are communicated and creates and take the Data Base as per they want.

(g) Casual users: Casual user uses only the Data Base.

① The different types of key attributes are :

- ① Primary key
- ② Composite key
- ③ Foreign key
- ④ Unique key
- ⑤ Attribute key

① Primary key: It is the key which is identified as unique -ly one.

② Composite key: It is the a similar primary key which is considered as a one.

③ Foreign key: If 2 primary keys has similar Data Base it is considered as Foreign key.

④ Unique key: It is considered as uniquely one and has only single Data Base in any one Data Base and has similar.

⑤ Attribute key: The key has different attributes for one Data Base.



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Second

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 Subject/ವಿಷಯ: Computer Science Semester/ಸೆಮಿಸ್ಟರ್: II Exam Seat No / ಪರೀಕ್ಷೆ ಸ್ಥಳಾಂಕ: U15KM2250197
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a) sizeof - It is used to allocate the memory.

free - This function is used to deallocate unwanted memory.

b) Static memory allocation - It is ^{having} fixed memory allocation, we cannot change the size of memory during the time of execution.

Dynamic memory allocation - In this there is no fixed memory. We can grow or shrink the size of memory during execution.

c) Advantages of linked list.

* Linked list is a dynamic data structure i.e., the size of function can be grow or shrink during the time of execution.

* Memory allocation is easy as compared to array.

* Memory utilization in efficient manner.

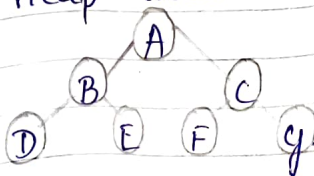
Terminal node

The node without having its children or with degree 0 is called terminal node.

Non terminal node.

* Except root node and node whose degree is not 0 is called as non-terminal node.

It is binary tree of node n and depth 'd' is called binary heap tree.

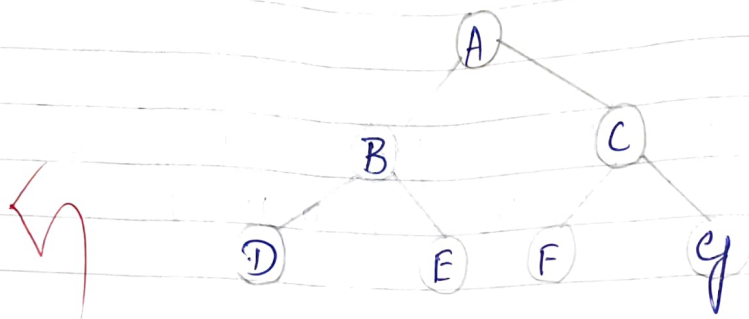


III

① Tree traversal is one basic operation which can frequently performed on trees. Tree traversal is way of visiting each element in a given tree exactly once. This process is called tree traversal. There are three methods to traverse tree.

- ① Inorder
- ② Preorder
- ③ Postorder

Ex



① Inorder - In this method following steps are follows.

- * Traverse left node
- * Traverse root node
- * Traverse right node

Ex DBEAFG

② Preorder - In this method following steps are follows

- * Traverse root node
- * Traverse left node
- * Traverse right node

Ex ABDECFG

③ Postorder - In this method following steps are follows

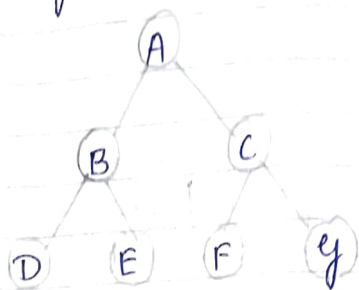
- * Traverse left node
- * Traverse right node
- * Traverse root node

Ex DEBFGCA

③ *Degree of the tree - It is the maximum degree of a node in a given tree. In the below example degree of tree is 2.

* Siblings - The children of a given parent are called as siblings. In the below example B & C, D & E, F & G are siblings.

* Ex



II b)

Malloc	Calloc
* It is used to allocate single block of element	* It is used to allocate multiple block of elements.
* Syntax - malloc (size)	* Syntax - calloc (n, size);
* It is more efficient	* It is less efficient.
* Easy to implement	* Difficult to implement
* Memory uses in efficient manner	* Memory uses not in a efficient manner

① Queue - Queue is non-primitive linear data structure. In this data structure data elements are arranged in a sequence. There are two variable which are commonly used for inserting and deleting elements. Through the rear we can insert the elements by using front variable. we can delete the data elements.

Whenever we insert new element rear will be

increment by 1 value and when we delete a data element variable front will be incremented by 1 value.

There are 4 types queues.

- ① Simple Queue / Ordinary Queue.
- ② Circular queue
- ③ Double ended Queue
- ④ Priority Queue.

Representation of Queue - Queue can be represented by using static representation or dynamic representation. Static representation means array representation. Dynamic representation means linked list representation. We can declare size of queue by using array `int Queue[size];` or `int Queue[MAX]`. We can also define queue by using macro i.e.,
`#define MAXSIZE 10;`
Where queue holds element upto 10.

④ Priority Queue - In this data elements are deleting according to their priorities. If the data having highest priority and another data having lowest priority then the data having highest priority will be processing first.

There are two types.

① Ascending priority Queue - In which data having low priority will be deleting first from the Queue, but they can insert in any order.
Ex: 30 10 20 40.
Here 10 will be deleting first.

② Descending priority Queue - In which data having highest priority will delete first but they can insert in any order.
Ex: 30 10 20 40.
Here 40 will be deleting first.

- ③ Double ended Queue - In this elements can be inserted from both the sides i.e., data can be insert from rear end as well as front end and data can also be delete from front end and rear end is known as double ended queue
Ex $\begin{array}{c} \text{Insert} \\ \text{Delete} \end{array} \rightleftharpoons 10 \quad 20 \quad 30 \quad 40 \quad 50 \rightleftharpoons \begin{array}{c} \text{Delete} \\ \text{Insert} \end{array}$

There are two types.

- ① Input Restricted double ended queue
- ② Output Restricted double ended queue.

④ Circular Queue - In this queue at the beginning front and rear will be at -1 position. As we insert a que data rear will be incremented by 1 as we delete data will decremented by 1. There we are using counter variable which is incrementing by 1 when we insert data & decrement by 1 when we delete data

① Simple Queue - Through the rear end we can insert data & through the front we are deleting the data But when we insert data & delete it then we can't add new element.



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18 / 20

Q-1) Identifiers in Python are used to name variables, function, classes, modules and other objects. They are case-sensitive.

Q-4) Comment are statement that do not executed. Comment explain program and make program understandable and readable.

Eg :- if a > b

relational operator

Q-5) Syntax of for loop
for val in sequence.

statements

Q-3) lambda keyword uses to create anonymous function which has no name in the variable. while regular function defines uses def keyword.

Q-2) Recursion : - A function call itself is called recursion.

def Factorial(n):

if n == 1

return n

else

return n * Factorial(n-1)

num = int(input("Enter a number"))

n < 0 :

print("Factorial of the negative number do not exist") else

$n == 0;$
Print ("Factorial of 0 is 1")
else
Print ("Factorial of "num" is ", factorial(num))

Q-3) Different types of operators in Python :-

- 1) Arithmetic operators
- 2) Relational operators
- 3) Logic operators
- 4) Bitwise operators
- 5) Assignment operators
- 6) Other special operators

1) Arithmetic operators: The arithmetic operators are used to perform mathematical operations.

Eg:- + addition ($x+y$)

- subtraction ($x-y$)

* Multiplication ($x*y$)

2) Relational operators: Relational operators are used to perform the compare of values

Eg:-

< less than

> greater than

$a < b$

$a > b$

3) Logic operators: Logic operators are used to perform

logic AND, ~~logic OR~~ logic OR, ~~logic NOT~~ NOT operators

Ex:-

logic AND

OR

NOT

4) Bitwise operator : The Bitwise operator are used to perform bit by bit operation
Ex : - $x \& y$ AND $x \& y$
OR $x | y$

5) Assignment operator : They are used to assign the value of the variable.