

MARKING GUIDES 2022

SECTION A

1. List the main characteristics of a computer.

Answer

- Speed //
- Accuracy //
- Diligence //
- Storage Capacity //
- Versatility //
- Reliability //
- Power of remembering //
- Compactness //
- No IQ //
- No feeling //
- logical / It uses artificial intelligence //
- automation

(Any 5 characteristics, one mark at each)

2. Describe the difference between keywords and identifiers, and give an example.

Answer

* Keywords are the reserved words which convey specific meaning to the C++
Keywords can not be used as an identifier //⁵

Example: Switch, case, for, if, etc. //

OR

* Keywords are words that have special meaning in any programming language and can only be used for an intended purpose. //⁵

* Identifiers are the user defined names given to different parts of C++ program. Identifiers are not reserved. //⁵

OR

Identifier is a name given to a variable //⁵

Example: name, age, class_12B etc. //

3) What are the various formatting tags in HTML? Explain each.

Answer

- : Makes text bold
- <i> : Makes text italic

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- ``: makes text italic but with added semantics importance
- `<big>`: increases the font size of the text by one unit
- `<small>`: decreases the font size of the text by one unit
- `<sub>`: makes the text a subscript
- `<sup>`: makes the text a superscript
- ``: displays a strike out text
- ``: makes the text as important
- `<mark>`: highlights the text
- `<ins>`: displays as added text

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(Any 3 tags 1 at each, 1 for each explanation)

4) Determine the output of the following program

```
#include <iostream>
using namespace std;
int main ()
{
    int n = 44;
    int rn = n;
    cout << "n = " << n << ", rn = " << rn << endl;
    -- n;
    cout << " 'm = " << n << ", rn = " << rn << endl;
    rn * = 2;
    cout << " m = " << n << ", rn = " << rn << endl;
}
```

Answer

$$\begin{array}{l}
 n = 44, rn = 44 \\
 \text{or} \quad n = 43, rn = 43 \\
 \text{or} \quad n = 86, rn = 86
 \end{array}$$

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5) Illustrate some advantages of Servlets.

- Power
- Integration \rightarrow (you can explain the details)

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- Efficiency ^
- Safety ^
- Portability ^
- Endurance ^
- Elegance
- Extensibility ^
- Flexibility ^

- A Servlet is convenient in modifying regular HTML
- We can write the servlet code into the JSP
- Servlets includes the feature of multithreading of java ^
- We can make use of exception handling
- Servlets have a separate layer of business logic in the application ^
- Easy for developers to show and process the information
- Servlets provide a convenient way to modify HTML pages ^
- Servlets have a separate layer of business logic in the application ^
- All the advantages of Java - like multi-threading, exception handling, etc. are there in Servlets. ^

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(Any 4 advantages, 1 mark at each.)

⑥ Using if... else if statement, write the corresponding codes of the following program codes (suppose that are embedded in VB6.0 or VB.net)

```
Dim Age As Integer
Age = Text1.Text
Select Case Age
Case 5
lblCategory.Caption = "Child of Five years old"
Case 13 To 19
lblCategory.Caption = "Teenager"
Case 20 To 35, 50, 60 To 65
lblCategory.Caption = "Special Adult"
```



```
Case Is > 65  
lblCategory.Caption = "Senior Citizen"  
Case Else  
lblCategory.Caption = "Everyone Else"  
End Select
```

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Answer

Vb6.0

Private Sub Command1_Click ()

Dim Age As Integer

Age = Text1.Text

If Age = 5 Then /0⁵

lblCategory.Caption = "Five Year old" /0⁵

Else If Age >= 13 And Age <= 19 Then /0⁵

lblCaption

lblCategory.Caption = "Teenager" /0⁵

Else If (Age >= 20 And Age <= 35) Or Age = 50 Or

(Age >= 60 And Age <= 65) Then

lblCategory.Caption = "Special Adult" /0⁵

Else If Age > 65 Then /0⁵

lblCategory.Caption = "Senior Citizen" /0⁵

Else /0⁵

lblCategory.Caption = "Everyone Else" /0⁵

End If /0⁶

End Sub

Vb.net

Public Class Form1

Private Sub

Button1_Click (sender As Object, e As EventArgs)

Handles Button1.Click

Dim Age As Integer

Age = TextBox1.Text

If Age = 5 Then /0⁵

Label1.Text = "Five Year old" /0⁵

Else If Age >= 13 And Age <= 19 Then /0⁵


```
Case Is > 65  
lblCategory.Caption = "Senior Citizen"  
Case Else  
lblCategory.Caption = "Everyone Else"  
End Select
```

Answer

Vb6.0

```
Private Sub commands_click ()  
Dim Age As Integer  
Age = Text1.Text  
If Age = 5 Then  
lblCategory.Caption = "Five Year old"  
Else If Age >= 13 And Age <= 19 Then  
lblCaption  
lblCategory.Caption = "Teenager"  
Else If (Age >= 20 And Age <= 35) Or Age = 50 Or  
(Age >= 60 And Age <= 65) Then  
lblCategory.Caption = "Special Adult"  
Else If Age > 65 Then  
lblCategory.Caption = "Senior Citizen"  
Else  
lblCategory.Caption = "Everyone Else"  
End If  
End Sub
```

Vb.net

Public Class Forms

Private Sub

Buttons_click (sender As Object, e As EventArgs)

Handles Buttons_click

Dim Age As Integer

Age = TextBox1.Text

If Age = 5 Then

label1.Text = "Five Year old"

Else If Age >= 13 And Age <= 19 Then


```
Labels.Text = "Teenager" / 0'  
Elseif (Age >= 20 And Age <= 35) Or Age = 50 Or (Age >= 60 And Age <= 65) Then / 1'  
Labels.Text = "Special Adult" / 0'  
Elseif Age > 65 Then / 0'  
Labels.Text = "Senior Citizen" / 0'  
Else / 0'  
Labels.Text = "Everyone Else" / 0'  
Endif / 0'  
End Sub
```

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7) Outline any four devices where java can be used.

Answer

- Android Mobile / 0'
- Television / 0'
- Smart Card / 0'
- Robotics / 0'
- Cell phones / 0'
- Desktop / 0'
- Servers / 0'
- Tablets / 0'
- Web Servers / 0'

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(5 mark at each device, Any 4 devices)

8) Analyse the program below:
class district {

```
int num;  
String name;  
district ()  
{  
System.out.println("Dwanda has 30 districts"); }  
public class learningactivity102 {  
public static void main (String[] args)  
{  
district districts = new district ();  
System.out.println (districts.name);
```



```
System.out.println(districts.num); } }
```

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~~After an~~

- what is the output of the above program?
- Differentiate between `district`, `districts` and `district()` used in above program.

Answer

c) output :

Rwanda has 30 districts 11

Null 10'

0. 10'

- Class `district` is a class 11
 - `districts` is an object 11
 - `district()` is a construct of class `district` 11

15

g) Differentiate RDB and RDBMS.

Answer

RDB (Relational Database) : is a way of organizing data such that it appears to the user to be stored in a series of interrelated tables. 12

whereas

RDBMS (Relational Database Management System) is a software of managing data stored in interrelated tables. 1 12

14

10

10) Define the following terms used in Computer security

- a) Computer security
- b) Threat

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Answer:

a) Computer security refers to techniques developed to safeguard information and systems stored on computers. /2

b) Threat refers to anything that has the potential to cause serious harm to a computer system. /2

or A threat is an activity/attack/situation that may happen, with the potential to cause serious damage. /2

/4

11) What are the advantages of protecting your wireless network with a password?

Answer

The protection of wireless network with a password helps to prevent unauthorised access or damage such as downloading pirated movies or porn to computers using that wireless networks. /3

It also guarantees the proper utilisation of available bandwidth. /1

~~or~~

12) What does the term bandwidth mean? Give an example. /3

Bandwidth means the data carrying capacity of the channel. It defines the speed which the channel can carry data. Bandwidth is defined in mbps. /2

Example

if we say that the channel bandwidth is 20mbps, it means that the channel has a data carrying capacity of 20 MB in one second. /1

/3

OR;

Bandwidth is the amount of data that can be transmitted per unit of time. 12.

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13. List four areas where computer graphic can be applied.

Answer

- Computer aided design 10'
 - Computer art / decoration 10'
 - Entertainment 10'
 - Business 10'
 - Education 10'
 - Training 10'
 - Advertisement of
 - Animation of
- (0.5 at each area, any 4 areas)

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SECTION B

14) Elaborate responsibilities and role of technician in computer repairing.

Answer

A computer repair technician works to ensure computers function correctly.

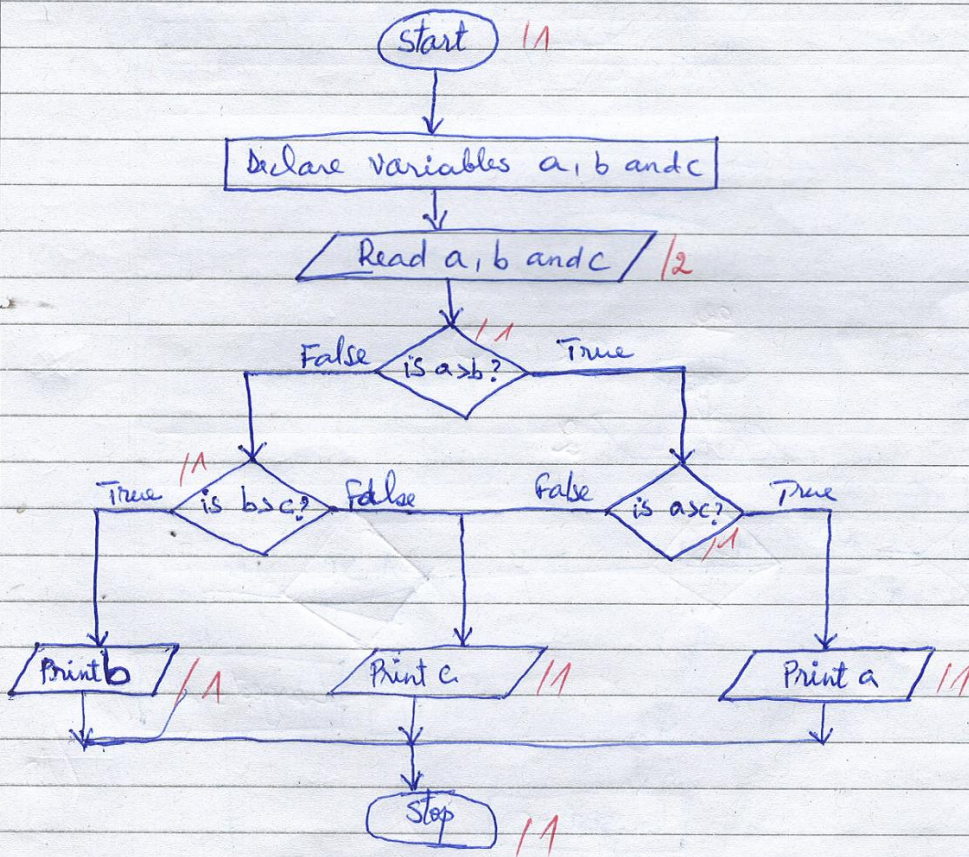
- Preparing new computer system
- Installing software and computer programs
- Maintaining and troubleshooting existing software
- Updating and checking computer security programs
- Instructing customers on best security practices
- Analyzing computer function and repairing hardware or servers as needed

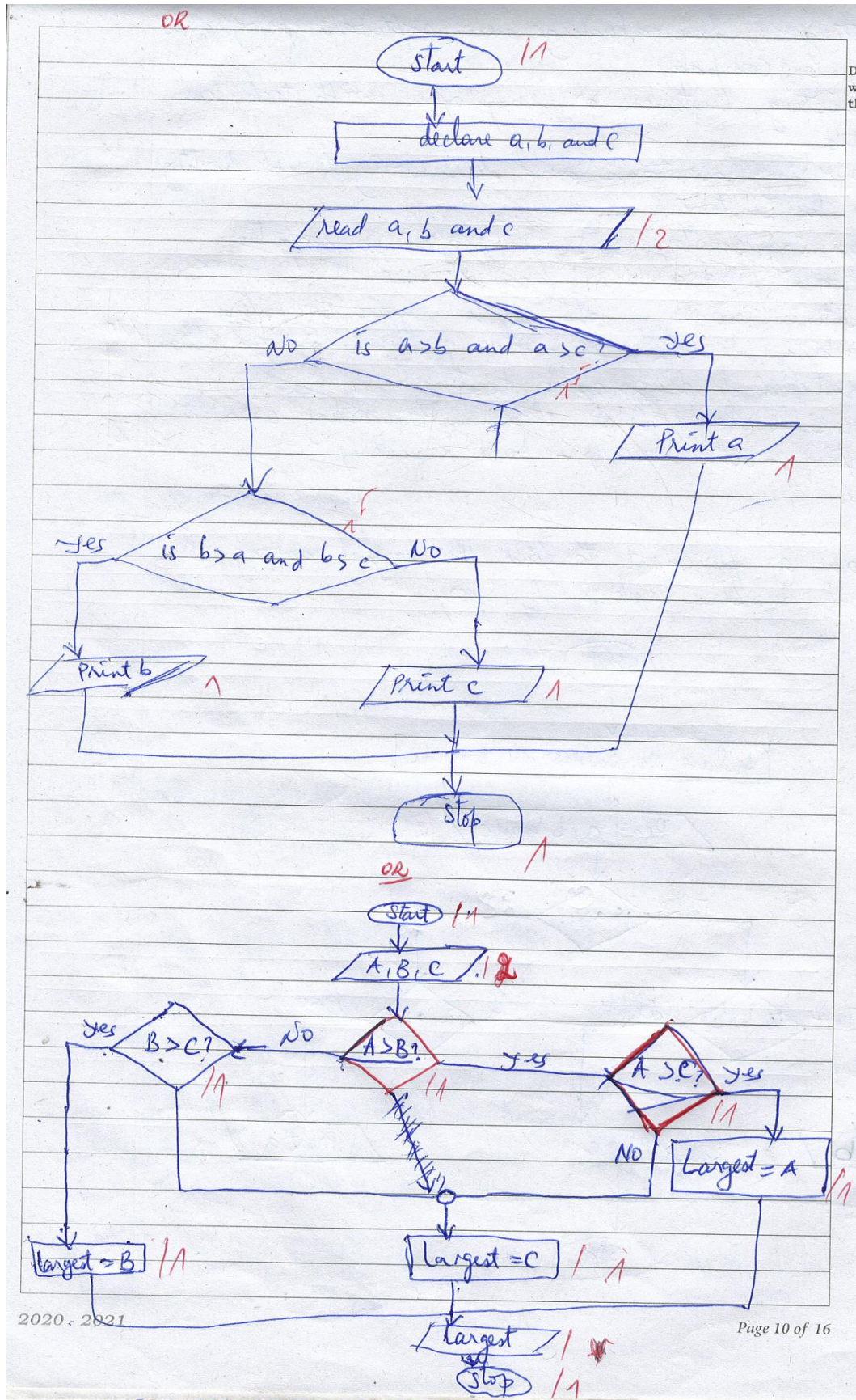
- Testing and evaluating new software programs for a company
- Assisting customers or employees with technical issues
- Answering questions and describing troubleshooting steps to customers
- Training customers or employees on computer software programs or general use
- Visiting homes or offices to repair computers
- Working remotely to solve problems through live chat and diagnostic testing.
- Responsible for general cleaning of working area
- Reporting, - data backup - data recovery

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/10

15) Draw a flowchart to find the largest among three different numbers entered by user.





16) using array write a java program to calculate sum and average of n numbers.

Answer

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```
import java.util.Scanner; 101
public class Sum_Average 101
{
    public static void main (String [] args) 101
    {
        int n, sum = 0; 101
        float average; 101
        Scanner s = new Scanner (System.in); 101
        System.out.println ("Enter no of elements you
            want in array:"); 101
        n = s.nextInt (); 101
        int a[] = new int [n]; 101
        System.out.println ("Enter all the elements:");
        for (int i = 0; i < n; i++) 101
        {
            a[i] = s.nextInt (); 101
            sum = sum + a[i]; 101
        }
        System.out.println ("Sum: " + sum); 101
        average = (float) sum / n; 101
        System.out.println ("Average: " + average); 101
    }
}
```

10

17) Study the table below and answer the queries that follow

ACCOUNT

CustomerID	AccountNumber	AccountType	DateOpened	Balance
1001	9987	checking	10/12/1989	4000.00 4000.00
1001	9980	Savings	10/12/1989	2000.00
1002	8811	Savings	01/05/1992	1000.00
1003	4422	checking	12/01/1994	6000.00
1003	4433	Savings	12/01/1994	9000.00
1004	3322	Savings	8/22/1994	500.000
1004	1122	checking	11/13/1988	800.000

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write
this

CUSTOMER

CustomerID	Names	Address	City	State	Zip
1001	Smith	123 Lexington	Smithville	KY	91232
1002	Jones	12 Davis Ave	Smithville	KY	91232
1003	Alex	443 Grander Ln	Broadville	GA	81992
1004	Builder	661 Parker Rd	Streetville	GA	81990

- List all the details of customer
- List all different account types
- Display all customers whose names contain the character "n"
- Find the total savings of all customers
- What will be SQL code for the following output?

CustomerID	AccountNumber	AccountType	DateOpened	Balance
1003	4422	checking	12/01/1994	6000.00
1004	1122	checking	11/13/1988	800.000

Answer

a) Select * from

a) List all the details of customer
 ⇒ Select * from customer;
or or or or

b) List all the different account types.

=> Select distinct AccountType from account;

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c) Display all customers whose names contain the character "n".

=> Select * from customer where name like '%n%';

OR Select Names from Customer where name like '%n%';

d) Find the total savings of all customers

=> Select sum(balance) as Total from account where AccountType = 'Savings';

e) what will be spid c.

=> Select * from ACCOUNT where AccountNumber <= 4422

and balance > 500.00;

OR

=> Select * from Account where AccountNumber = 4422 or AccountNumber = 1122;

Select * from Account where Balance = 6000.00 or Balance = 8000.00;

Alternative to (d).

=> Select sum(balance) as total from Account, customer

where Account.customerID = customer.customerID AND
AccountType = 'Savings';

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18) Write a VB program that displays the multiplication Table of 4 to 6. (you can use Vb6.0 or Vb.net)

Answer

Private Sub Form_Load () 10'

Forms.Show 10'

Dim i, a As Integer 11

Print "Multiplication table of "; 4; " is here below: "

For a = 4 To 6 11

For i = 1 To 10 11

Print a; " x " ; i; " = " ; a * i; 12

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```

Next i //
Print " " //
If (a < 6) Then
Print " Multiplication table of " ; a+1 ; " is here below: "
End If
Next a //
End Sub //
    
```

OR

```

private sub Form_activate () //
Dim i, a As integer //
for a = 4 To 6 //
Print " Multiplication table of " ; a ; " is: " //
for i = 1 To 10 //
Print a ; " x " ; i ; " = " ; a * i //
Next i //
Print " " //
Next a //
End sub //
    
```

```

OR private sub form_load () //
forms.show //
Dim i As Integer //
    
```

1/10

```

for i = 0 to 12 //
Print " 4 x " ; i ; " = " ; i * 4 //
Next i //
Print " " //
for i = 0 to 12 //
    
```

```

Print " 5 x " ; i ; " = " ; i * 5 //
Next i //
Print " " //
for i = 0 to 12 //
Print " 6 x " ; i ; " = " ; i * 6 //
Next i //
End sub //
    
```

SECTION C

19

Answer

```

#include <iostream> //
#include <string> //
using namespace std; //
class employee //
    
```

```

private: string name; long number; public:
void getdata() // get data from user //
    
```

```

cout << "\n Enter name: "; //
cin >> name; //
    
```



```
cout << "Enter number : " ; cin >> number ;
}
void putdata ( )
{
    cout << "In Name : " << name ;
    cout << "In Number : " << number ;
}
int main ( )
{
    employee emparr [100];
    int n = 0;
    char ch;
    do
    {
        cout << "In Enter data for employee number : " << n + 1 ;
        emparr [n++].getdata ( ) ;
        cout << "Enter another (y/n) ? " ; cin >> ch ;
        while ( ch != 'n' ) ;
        for ( int = 0 ; j < n ; j++ )
        {
            cout << "In Employee number : " << j + 1 ;
            emparr [j].putdata ( ) ;
        }
        cout << endl ;
        return 0 ;
    }
}
OR
#include <iostream>
#include <string>
using namespace std;
class employee
{
private:
    string name;
    long n;
public:
    void getdata ( )
    {
        cout << "Enter name : " << endl ;
    }
}
```

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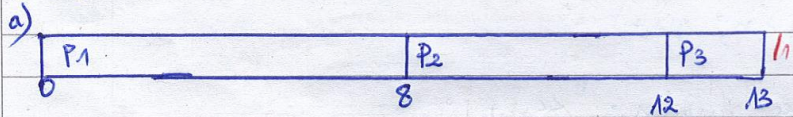
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```

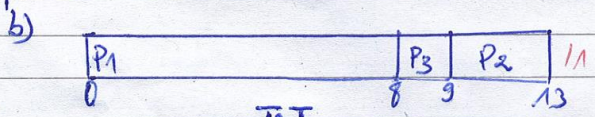
cin >> name;
cout << "Enter number:" << endl;
cin >> n;
void putdata()
{
    cout << "The name is:" << name;
    cout << "The number is:" << n;
}
Emp [100];
int main()
{
    for (int i=0; i<100; i++)
        emp[i].getdata();
    for (i=0; i<100; i++)
        emp[i].putdata();
    return 0;
}
    
```

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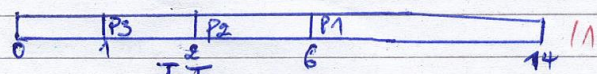
20) a) Gantt chart is needed to find the finish time
 Turnaround time = finish time - arrival time



	Turnaround Time	
P1	8 - 0 = 8	11
P2	12 - 0.4 = 11.6	11
P3	13 - 1 = 12	11
Average Turnaround time	10.53	11



	T.T	
P1	8 - 0 = 8	11
P2	13 - 0.4 = 12.6	11
P3	9 - 1 = 8	11
A.T.T	9.53	11



P1	14 - 0 = 14	11
P2	6 - 0.4 = 5.6	11
P3	2 - 1 = 1	11
A.T.T	6.87	11