Plus One Computer Science Answer Key-Model Exam June 2022

Answer any 5 Questions from 1 to 7. **(1*5=5)**

1.microprocessor
2.Cache memory
3.do... while
4.Null Character (\0)
5.isupper()
6.recursive function
7.Gateway

Answer any 9 from 8 to 19. **(9*2=18)**

8. a) $(31)_{10}=(11111)_2$
   b)$(10001)_2=17$

9.Data Processing is the set of operations performed on data to produce meaningful information.

10.Any Two Points

RAM	ROM
Random Access Memory	Read Only Memory
It is faster than ROM .	It is a slower memory .
It will lose its data if the power is turned off (**volatile)**	It RETAINS data even if the power is turned off (**non volatile)**
It allows reading and writing	Allows reading only .

11.Operating system is a Set of programs that acts as an interface between the user and computer hardware .It makes the computer system convenient to use. Example DOS Windows Unix Linux

12.Internal Documentation and External Documentation

13.Non-graphic symbols are represented using Escape Sequences. It is of the format back slash (/) followed by some specific characters. Eg: **'\n'** is used for New Line

14.The default statement get executed when no match is found between the value return by the expression and the case constants in switch statement.

15.Any Two Points

Break	Continue
Used with switch and loops	Used only with loops
Brings the program control outside the switch or loop by skipping the rest of the statements within the block.	Brings the program control to the beginning of the loop by skipping the rest of the statements within the block.
Program control goes out of the loop even though the test expression is True	Program control goes out of the loop only when the test expression becomes False.

16.Array is a collection of elements of same type placed in contiguous memory location

Syntax: Data Type Array Name [Size];

int A[10]; int-->Data Type, A--->Array Name 10--->Sub script/Size of the Array

17.Any Two Points

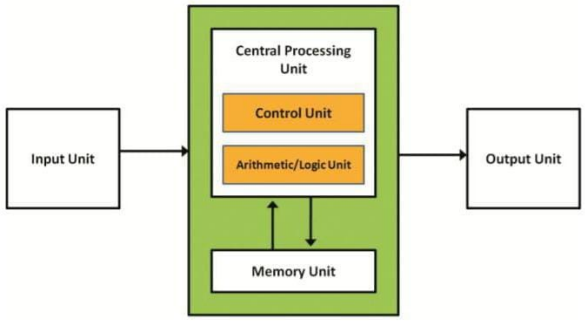
Linear Search	Binary Search
The elements need not be in any order	The elements should be in sorted order
Takes more time for the process	Takes very less time for the process
May need to visit all the elements	All the elements are never visited
Suitable when the array is small	Suitable when the array is large

18.Modular programming is the process of sub dividing a computer program into separate sub-programs. It reduces the program complexities. Error Tracing is easy. Error occurrence chance is less. Improve the code re usability.

19.itoa() ---->It is a conversion function, other three are string functions

Answer any 9 from 20 to 32 **(9*3=27)**

20.The mathematician John Von Neumann designed a computer architecture known as Von Neumann architecture. It consists of a central processing unit (CPU) containing arithmetic logic unit (ALU) and control unit (CU), input-output unit and a memory for storing data and This model implements the 'Stored Program Concept' in which the data and the instructions are stored in the memory.



21.-60----> 8 Bit representation: (00111100), **1's Complement: $(11000011)_2$**

22.e Waste - Refers to electronic products nearing the end of their useful life

Eg : Discarded computers mobile phones television sets refrigerators etc :-

e Waste disposal methods –

1.Reuse:Second hand use

2.Incineration:Controlled combustion process in which waste is burned at a high temperature.

3. Recycling :Making new products from old devices

4. Land filling :Soil is excavated and e waste is buried in it

23.Programming errors are known as 'bugs'. The process of detecting and correcting errors is called **debugging.**

There are three types of errors :

1.Syntax errors : Errors which occur when the rules or syntax of the programming language are not followed .

2.Logical errors : Logical error is due to improper planning of the program logic .

3.Run time errors - : Errors which occur during program execution . Eg division by zero

24.**Rules to form an identifier** :

1.Identifier is a sequence of letters digits and underscore
2.The first character must be letter or underscore
3.Keywords cannot be used as identifiers .
4.Special characters or white spaces cannot be used
Eg :score, score_1,score1, INT

25.**Data types:** Used to identify nature and type of data stored in a variable
Fundamental data Types: char,int,float,double,void

26.
```
if(mark>30)
        result='p'
else
        result='f'
```

27.Bubble sort Algorithm

Step 1. Start
Step 2. Accept a value in N as the number of elements of the array
Step 3. Accept N elements into the array AR
Step 4. Repeat Steps 5 to 7, (N - 1) times
Step 5. Repeat Step 6 until the second last element of the list
Step 6. Starting from the first position, compare two adjacent elements in the list. If they are not in proper order, swap the elements.
Step 7. Revise the list by excluding the last element in the current list.
Step 8. Print the sorted array AR
Step 9. Stop

28. get( ) - used to input a single character or stream of characters.
Header file iostream :
Syntax: cin.get(variable); cin.get(array name,size);

getline( ) - used to input a string
Header file iostream :
Syntax cin.getline(array name len);

29.Any three points

Call By Value	Call By reference
Ordinary variables are used as formal parameters.	Reference variables are used as formal parameters .
Actual parameters may be constants , variables or expressions .	Actual parameters will be variables only.
The changes made in the formal arguments do not reflect in actual arguments.	The changes made in the formal arguments do reflect in actual arguments.
Exclusive memory allocation is required for the formal arguments .	Memory of actual arguments is shared by formal arguments .

30.Computer Networks: It is a group of computers and other devices connected to each other electronically through a communication medium.

Need for Network

1.Resource sharing **2.**Price performance ratio **3.**Communication **4.**Reliability **5.**Scalability

31.**Sections of an e mail:** To (Recipient Address), Cc(Carbon copy), Bcc(Blind carbon copy) Subject: Provide a meaningful subject of conversation , Content: we can type our messages in the body section.

32. **Social media** refers to the use of mobile and web based technologies through which - individuals and communities can create share discuss and modify content.

Social media interaction-Best practices

1.Avoid unnecessary uploading of personal data like e-mail address, telephone number, address, pictures and videos.

2.Setting time schedule for using these sites can save wastage of time.

3. In social media websites like wikis and blogs, photo and video sharing are public. What you contribute is available for all to see. Be aware of what you post online. Avoid posting content you may regret later.

4.Set your privacy levels in such a way that you know exactly who can see your posts and who can share them. The three basic privacy levels in social media are private, friends and public.

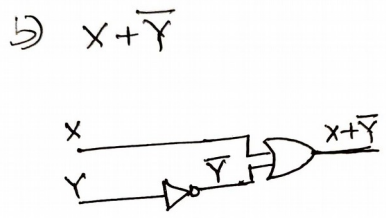
Answer any 2 from 33 to 36. **(2*5=10)**

33.**De Morgan's Theorem**

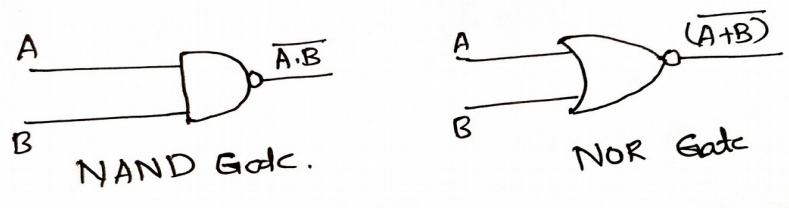
a) 1.The complement of sum of Boolean variables is equal to the product of their individual complements $(X+Y)' = X'.Y'$

2. The complement of product of Boolean variables is equal to the sum of their individual complements . $(X.Y)' = X' + Y'$

b)



c)

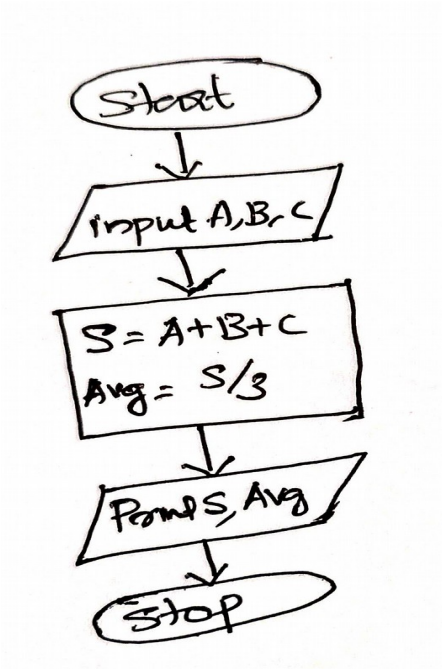


34.a) The pictorial representation of an algorithm is known as **flowchart.**

Advantages:(Any Three)

1.Better communication 2.Effective analysis 3. Effective synthesis 4. Efficient coding

b)



35)

a) **Structure of a C Program ++**

```
#include <header file> -----> line 1
using namespace identifier ; ----> line 2
int main () ----> line 3
{
statements;
return 0;
}
```

Line 1: : Preprocessor directive
Line 2: : namespace statement
Line 3: : Function header

OR

Sample program

```
#include<iostream>
using namespace std ;
int main ()
{
cout <<"welcome to C++";
return 0;
}
```

b)**Type conversions**

• Conversion of the data type of an operand to another .

Two types of conversion :

Implicit(Type Promotion) This is done by the compiler and the conversion is from lower data type to higher.

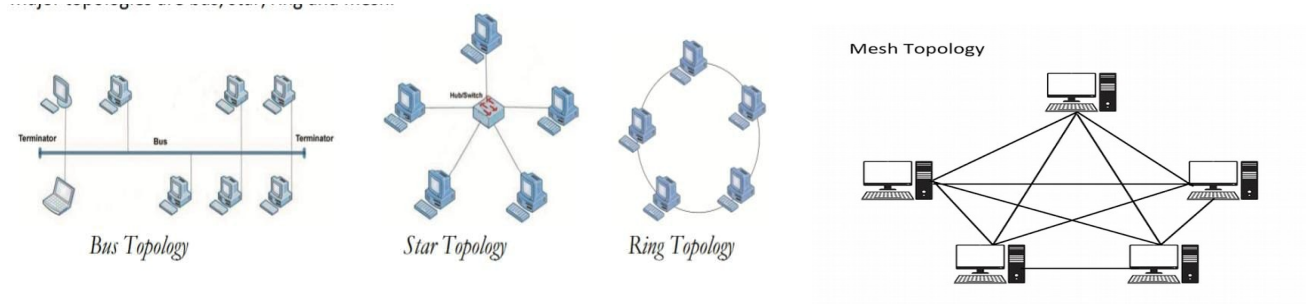
Eg :5/2.0==>2.5(Here, int data type of 5 is converted to float by compiler.Thus the result of the float expression is also float)

OR

Explicit(Type casting): This is done by the programmer explicitly and conversion can be to any data type.

Eg : 5/(int)2.0 ==>2 (Here programmer uses type casting (int) to convert the float data type of 2.0 to int .Thus the result of this integer expression is also an integer)

36. **Topology:** The way in which the nodes are physically interconnected to form a network . Major topologies are bus star ring and mesh.



(Any 2 Points from each topology)

Bus Topology

- Easy to install.
- Requires less cable length and hence it is cost effective.
- Failure of a node does not affect the network.
- Failure of cable (bus) or terminator leads to a break down of the entire network.
- Fault diagnosis is difficult. ï Only one node can transmit data at a time.

Star Topology

- More efficient compared to bus topology.
- Easy to install.
- Easy to diagnose faults.
- Easy to expand depending on the specifications of central hub/ switch.
- Failure of hub/switch leads to failure of entire network.
- Requires more cable length compared to bus topology.

Ring Topology

- No signal amplification is required as each node amplifies the signal.
- Requires less cable length and hence is cost effective.
- If one node fails, entire network will fail.
- Addition of nodes to the network is difficult.
-

Mesh Topology

- Network will not fail even if one path between the nodes fails.
- Expensive because of the extra cables needed.
- Very complex and difficult to manage.