

Question 1:

1) Write the data-type of the following literals (or literal expressions) [3 marks]

Statement/Literal	Data Type
"true"	
'2'	
2f	
0x456	
2L	
034	

2) Which of the following are incorrect statements if `int a=55`. Encircle all the incorrect options. [1 mark]

- a) `if(a==55) cout << "I am correct";`
- b) `if(55==a) cout << "I am correct";`
- c) `if(a=55) cout << "I am correct";`
- d) `if(55=a) cout << "I am correct";`

3) What does the following statement display on the screen? If there is an error or bug: [3+3 Marks]

Correct output (3 marks)

OR

Circle only the error in the statement (1 mark)

Explain the issue (1 mark)

Rewrite only the circled portion of the statement to get ONE extra mark (1 mark)

		Output:
1.	<pre>cout<<"----/\ \----\n---/--\ \----\n--/---- \ \--\n-/-----\ \-\n-/-----\ \-\n--/---- \ \--\n---/--\ \----\n----/\ \----\n---- -- --\n";</pre>	
2.	<pre>1 #include<iostream> 2 using namespace std; 3 int main(){ 4 int myVar = 5; 5 if(-1){ 6 cout<<myVar<<endl; 7 int myVar; 8 myVar = myVar+1; 9 cout<<myVar-10<<endl; 10 } 11 else 12 { 13 cout<<myVar<<endl; 14 int myVar;</pre>	

15	myVar = myVar-1;	
16	cout<<myVar--<<endl;	
17	}	
18	cout<<myVar<<endl;	
19	}	

4) In the given statements, check if type coercion is occurring or not? If yes, then write the type of coercion (*Promotion* or *Demotion*). Specifically, encircle *Promotion*, *Demotion*, or *None* in front of each statement. [4 marks]

- a) float f=10.6f + 3.276f; [Promotion, Demotion, None]
b) double d=32.0; [Promotion, Demotion, None]
c) float f=23.0; [Promotion, Demotion, None]
d) double d=3 * 5.0; [Promotion, Demotion, None]

5) Write the output of the following code segments. If there is an error or bug, explain it. [25 Marks]

Segments	Output
cout << 7.0-2*5.0/3+6/2.0*4-1.0;	[1 mark]
int x = 50, y = 7, z = 3; cout << (x / y) % z + (x % y) * z << endl;	[1 mark]
int b=45, c=3; cout<<b/-c<<endl;	[1 mark]
int f0=4, f1=29; cout<<static_cast<float>(f1/f0) <<"\t"<<static_cast<float>(f0)/f1;	[2 marks]
float f=9, f1=4; cout<< static_cast<int>(f)/f1;	[1 mark]
(Assuming short takes only two bytes) short a=32760; a+=10; cout<<a<<"\t"; a=a-15; cout<<a;	[2 marks]
int a=9, b=15, c=4; cout<< (c=a);	[1 mark]

<pre>int a=5,b=16,c=3,d=1; d+=b%=c; cout<<c<<"\t"<<d<<"\t"<<b;</pre>	marks] [3
<pre>int a=5,b=15,c=4,d=1; a*=c>b; cout<< a<<"\t"; a=5; a+=b>c>d; cout<<a;</pre>	marks] [2
<pre>int a=5,b=15,c=4,d=1; a+=b/static_cast<double>(c)+d; cout<< a;</pre>	mark] [1
<pre>int a=5,b=15,c=4,d=1; a+=d==b>c; cout<< a;</pre>	mark] [1
<pre>if((-195 && 195) (25 && -25)) cout << "Condition is true."; else cout << "Condition is false.";</pre>	mark] [1
<pre>int pn=100; if(pn>20) if(pn<20) cout << "Heyyyyyy"; else cout << "Hiiiiii";</pre>	mark] [1
<pre>int x = 1; if (x >0) { { cout << x << endl; int x = 2; cout << x << endl; { cout << x << endl; int x = 3; cout << x << endl; } cout << x << endl; } }</pre>	marks] [3

Question 2:

Ahmed plans to open a small restaurant offering takeaways only. The restaurant offers 3 categories of food:

- Burgers
- Pizzas
- Sandwiches

When the user selects one of the options, a further submenu is displayed according to the chosen option. The online food shop offers Crispy Burgers and Smashed Burgers in the Burger category; Chicken tikka, and Four Seasons in the Pizza category whereas Chicken and Vegetables in the Sandwiches category. Prices of each food item is also displayed to the user in the selected sub menu. The user will select the food item and quantity of the item. The program outputs the total charges according to the chosen options.

For the above given scenario **complete** the following flowchart that encodes all the details given in the scenario.

START

Take inputs here and show any processing if required

Present your logic here

END

Question 3

Fill in the blank spaces in provided code using C++ statements. The following code should display the greater integer among two variables using arithmetic operators only and you cannot declare any new variable in the code other than the provided ones. Also provide expected output.

Hint: You are not allowed to use any relational or ternary operator, neither conditional structure is allowed. You can use cmath functions as library is included.

```
#include <iostream>

#include <cmath>

int a, b, gr; // Global variables

void GreaterAmongTwo();

using namespace std;

int main()
{
    a = 9, b = 5;    // Values initializes for output, it can be changed for testing purposes
    cout<<"You are in main function"<<endl;
    cout<<"The value in a and b \t"<< a<<"\t"<<b<<endl;
    GreaterAmongTwo(); // Calling the greater function
    cout<<"The greater value among "<< a<< "\t and "<<b<<"\tis= "<< gr<<endl;
    return 0;
}

void GreaterAmongTwo()
{
    cout<<"You are in GreaterAmongTwo function"<<endl;
    // write your code here
    _____
    _____
    _____
}
```

Expected Output:

