5.0 – floating point literal

"5" - string literal

16. The following are some invalid identifiers. Specify its reason.

a) Sum of digits

b) 1 year

c) First.jan

d) For **[July 2015, Score 1]**

Ans. a,b,c are invalid

Sum of digits contains white spaces

1 year starts with digit

First.jan contains special character

17. Mention the purpose of tokens in C++. Write names of any four tokens in C++

[March 2015, Score 2]

Ans. Tokens are the fundamental building blocks of the program.

1. Keywords
2. Identifiers
3. Literals
4. Punctuators
5. Operators

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Chapter 6 – Data types and operators

1. Write the logical operators of C++ with its symbols. **[March 2020, Score 2]**

Ans. The logical operators are && (logical AND), || (logical OR) and ! (logical NOT).

2. What is type promotion in C++ ? **[March 2020, Score 2]**

Ans. Implicit type conversion is performed by C++ compiler internally. In expressions where different types of data are involved, C++ converts the lower sized operands to the data type of highest sized operand. Since the conversion is always from lower type to higher, it is also known as type promotion.

3. What is the role of comments in C++ code ? Explain its types. **[March 2020, Score 3]**

Ans. Comments provide internal documentation of a program. There are two types of comments in C++

1. Single line comment - // is used to write single line comment

2. Multiline comment – Anything written inside */* and */* are known as multiline comments

4. Define the term variable. Write the correct syntax to declare a variable. **[July 2019, Score 2]**

Ans. Variables are the names given to memory locations. The syntax for declaring a variable is

datatype variable_name;

5. Describe any three datatypes in C++ **[July 2019, Score 3]**

Ans. The fundamental data types are:

int – 4 bytes of memory for integers

char - char represents character literals of C++. Each char type data is allowed one byte of memory.

float - 4 bytes of memory for numbers with fractional part

double – extension of float data type with 8 bytes of memory

void – empty set of data with 0 bytes of memory

6. List the datatype modifiers used in C++. **[March 2019, Score 2]**

Ans. signed, unsigned, long and short

7. Write the symbols of the following C++ operators.

a) Conditional operator

b) Extraction operator

c) Increment operator

d) NOT operator **[March 2019, Score 2]**

Ans. a) ?:

b) >>

c) ++

d) !

8. Describe three types of C++ expressions with an example **[March 2019, Score 3]**

Ans. a) Arithmetic expressions - An expression in which only arithmetic operators are used is called arithmetic expression. Classified into Integer expressions and floating-point expressions

E.g. x+y

b) Relational expressions – Relational operators are used in this expression to produce boolean type (true/false) results

E.g. x>y

c) Logical expressions - Logical expressions combine two or more relational expressions with logical operators and produce either True or False as the result

E.g. x == 5 || y == 0

9. Name the keyword that indicates the empty set of data **[July 2018, Score 1]**

Ans. void

10. What is the use of the keyword 'const'. Give an example. **[July 2018, Score 2]**

Ans. The keyword 'const' is used to declare and define constants whose value can never be changed during execution.

E.g. float pi=3.14;

11. a) Arrange the fundamental datatypes in in ascending order of their memory requirement?

[July 2018, Score 1]

b) What is the use of sizeof() operator in C++? Give an example **[July 2018, Score 2]**

Ans. a) void, char, int, float, double

b) Determines the *size*, in bytes, of a variable or data type

12. a) Write the name of any two header files used in C++ program **[July 2018, Score 1]**

b) Write the role of header files in C++ programs **[July 2018, Score 2]**

Ans. a) iostream, stdio

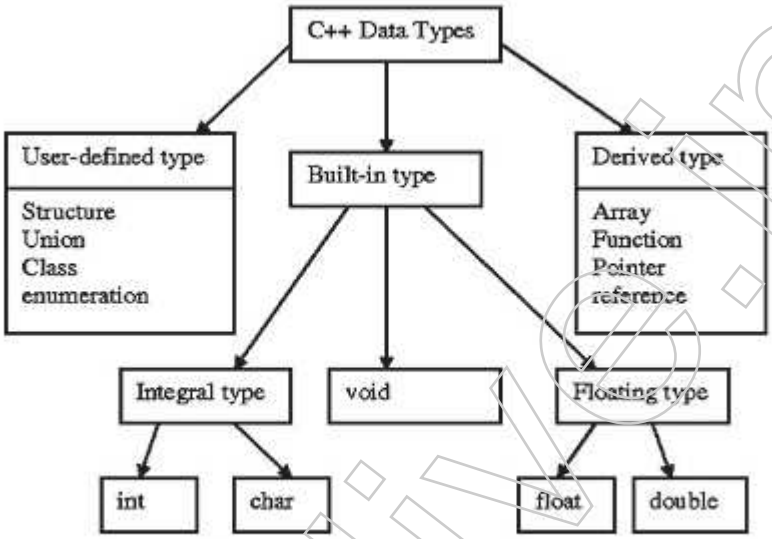
b) Header files contain the information about functions, objects and predefined derived data types and are available along with compiler.

13. Name any two pre-processor directives in C++ **[March 2018. Score 1]**

Ans. #include, #define , #undef

14. Classify data types used in C++. **[March 2018, Score 2]**

Ans.



C++ DATA TYPE

15. What is the role of relational operators? Give suitable examples **[March 2018, Score 3]**

Ans. Relational operators are used for comparing numeric data. These are binary operators. The result of any relational operation will be either True or False.

There are six relational operators in C++. They are

< (less than), > (greater than), == (equal to), <= (less than or equal to), >= (greater than or equal to) and != (not equal to)

E.g. m>=n

16. Write output of the following C++ program **[July 2017, Score 2]**

```
#include <iostream>

using namespace std;

int main()
```

```
{
int a=1, b=2, c=3;
cout<<a+b+c/3;
cout<<"\n";
cout<<(a+b)%c;
}
```

Ans. 4 (a+b+c/3=1+2+3/3=1+2+1=4)

0 ((a+b)%3=3%3=0)

17. Write the value returned by the following C++ expressions if x=10 and y=20

a) x>15 || y>15

b) x>15 && y>15

c) ! (x>y) **[July 2017, Score 3]**

Ans. a) false || true = true

b) false && true = false

c) !(false)=true

18. The following C++ code segment is a part of a program written by Smitha to find the average of 3 numbers

```
int a,b,c;
float avg;
cin>>a>>b>>c;
avg=(a+b+c)/3;
cout<<avg;
```

What will be the output if she inputs 1, 4 and 5? How can you correct it? **[March 2017, Score 2]**

Ans. The output will be 3 if the inputs are 1,4 and 5. Since the variable avg is declared as integer, (a+b+c)/3 can store only the integer part of 10/3 i.e. 3

The code can be corrected as

avg=(a+b+c)/3.0; to get the correct output

19. Briefly explain the three components in the structure of a C++ program.

[March 2017, Score 3]

Ans. 1. Pre-processor directives - Pre-processors are the compiler directive statements which give instruction to the compiler to process the information provided before actual compilation starts. Pre-processor directives are lines included in the code that are not program statements. These lines always start with a # (hash) symbol.

2. Header files - Header files contain the information about functions, objects and predefined derived data types and are available along with compiler. There are a number of such files to support C++ programs and they are kept in the standard library. Whichever program requires the support of any of these resources, the concerned header file is to be included.

3. main() function - Every C++ program consists of a function named main() . The execution starts at

main() and ends within main(). The function header main() is followed by its body, which is a set of one or more statements within a pair of braces { }

20. What is pre-processor directive statement? Explain with an example

[July 2016, Score 2]

Ans. Pre-processor directives are lines included in the code that are not program statements. These lines always start with a # (hash) symbol.

E.g. #include<iostream>

21. Write C++ examples for the following :

a) Declaration statement

b) Assignment statement

c) Type casting **[July 2016, Score 3]**

Ans. a) int x=20;

b) a = 15;

c = a + b;

c) y=(int)x;

22. Predict the output of the following C++ statements:

int a=-5, b=3, c=4;

c+=a++ + --b;

cout<<a<<b<<c; **[March 2016, Score 3]**

Ans. – 4 2 1

23. A student wants to insert his name and school address in the C++ program that he has written. But this should not affect the compilation or execution of the program. How is it possible?

[March 2016, Score 2]

Ans. He can write his name and school address in the program using comments, which will not affect the compilation or execution.

24. Write a C++ expression to calculate the value of the following equation.

$x=-b+\sqrt{b^2}-4ac/2a$ **[July 2015, Score 2]**

Ans. x = - b + ((b * b) – 4 * a * c)) / 2 * a ;

25. Explain the data types in C++ **[July 2015, Score 3]**

Ans. Based on nature, size and associated operations, data types are classified as: Fundamental data types, Derived data types and User defined data types.

1. Fundamental data types: These are the built-in data types of C++. Also known as basic data types or atomic data types. They are atomic in nature and cannot be further decomposed of. The five fundamental data types in C++ are char, int, float, double and void.

2. Derived data types: Derived data types are constructed from fundamental data types. Derived data types are: Array, pointers, functions etc.

3. User Defined data types: User defined data types are data types which are defined by the user himself. User can define the following data types: Structure, Union, enumeration, class etc.

26. Raju wants to add value 1 to the variable ‘p’ and store the new value in ‘p’ itself. Write four different statements in C++ to do the task. **[March 2015, Score 2]**

Ans. p=p+1; p++; ++p; p+=1;

27. Match the following : **[March 2015. Score 3]**

Name	Symbol
a) Modulus operator	i) ++
b) Logical operator	ii) ==
c) Relational operator	iii) =
d) Assignment operator	iv) ?:
e) Increment operator	v) &&
f) Conditional operator	vi) %

Ans. a) vi b) v c) ii d) iii e) i f) iv

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Chapter 7 – Control statements

1. Compare entry controlled loop and exit controlled loop. **[March 2020, Score 2]**

Ans.

Entry controlled loop	Exit controlled loop
Condition is checked before the execution of the body	Condition is checked after the execution of the body
No guarantee to execute the loop body at least once	Will execute the loop body at least once even though the condition is False
Suitable when skipping of the body from being executed is required	Suitable when normal execution of the body is to be ensured.

2. Write the syntax of 'for' statement used in C++. **[March 2020, Score 2]**