

QUESTION BANK

CLASS XI , COMPUTER SCIENCE (083)

HALF YEARLY EXAMINATION (2015-16)

Section –A : Question carrying 1 Mark

01. How is data different from information?
02. Arrange the following in descending order :-
Nibble, KB, Bit, GB, TB, Byte, MB
03. What is the significance of task bar in windows?
04. What is multitasking?
05. What is throughput?
06. What do you mean by memory access time?
07. What is word length?
08. What is a port?
09. Convert the following :-
 - (i) $(27.625)_{10} = (\quad)_2$
 - (ii) $(A42)_{16} = (\quad)_8$
 - (iii) $(23.25)_8 = (\quad)_{10}$
 - (iv) $(11100.1010)_2 = (\quad)_{16}$
10. What is the difference between 't' and '\t'?
11. What do you mean by cascade I/O operator?
12. Why is it necessary to include the file iostream.h in a C++ program?
13. What is the range of short data type?
14. **Rewrite the following code using conditional operator? :**

```
    If (avg < 50)
        grade = 'F';
    else
        if (avg < 70)
            grade = 'B';
        else
            grade='A';
```

15. What will be the value of k , after execution of the following statements , if a is 5 and k is 10 initially .
(a) $k = a = 3 ;$ (b) $k = a == 3 ;$ (c) $k += ++ a + a++$
16. What is the significance of the break statement in a switch block?

17. How is data different from information ?
18. Arrange the following in ascending order :-
19. microsecond , picoseconds , nanosecond , millisecond
20. What is the significance of task bar in windows ?
21. What is multitasking ?
22. What is throughput ?
23. What do you mean by memory access time ?
24. What is word length ?
25. What is a port ?
26. Write two advantages of dot matrix printer over ink jet printer
27. Write full forms of TFT , EPROM , EDVAC , ASCII

28. Convert the following :-

$$(27.625)_{10} = (\quad)_2$$

$$(B42)_{16} = (\quad)_8$$

$$(23.25)_8 = (\quad)_{10}$$

$$(11100.1010)_2 = (\quad)_{16}$$

29. What is the difference between 't' and '\t' ?
30. What do you mean by cascade I/O operator ?
31. Why is it necessary to include the file iostream.h in a c++ program ?
32. What is the range of short data type ?

33. Rewrite the following code using conditional operator ? :

```

If (avg <= 50)
grade = 'F';
else
if (avg < 70)
grade = 'B';
else
grade='A';

```

34. What will be the value of k , after execution of the following statements , if a is 5 and k is 10 initially .

(a) k = a = 3 ; (b) k = a == 3 ; (c) k = ++ a + a++

35. What is the significance of the break statement ?

36. What is system software ?

37. Convert the following :

(i) $(AEA)_{16} = (?)_{10}$ (ii) $(9567)_{10} = (?)_8$
 (iii) $(01110.10)_2 = (?)_{10}$ (iv) $(3674)_8 = (?)_2$

38. What function of operating system plays to manage memory.

39. Write a C++ equivalent C++ expression for the following

i) volume=3.1459 r²h/3 (ii) fn=0.5if x=30

40. Is return statements optional? Compare and comments on the following two

i) return; ii) return(void);

41. 1 MB and 1GB is equitant to _____ and _____

42. Data is a collection of

- i) Facts and entities (ii) relevant to user raw material
- iii) Numbers of alphabets (iv) input material for computers.

43. Rewrite the following conditional operator using if – else statement :
 Grade = (Percentage > 90) ? 'A' : 'B' ;
44. Explain how are the following two constant different :
 'S' and "S" .
45. Evaluate the following :
 (i) a += a + ++a { if a=20 initially }
 (ii) char ch = 'D' + 10
 cout << ch ;
46. Differentiate between the following with the help of examples :
 (i) 13 and 013
 (ii) 13 and 0X13
47. Evaluate following in C++ expression
 int a, m, b = 2, k = 4;
 a = m * 3 / 4 + k / 4 + 8 - m * 5 / 8;
48. Write the equivalent C++ expression for the following expressions
 i) $\sqrt{x^2} + 2xy$ ii) $ut + \frac{1}{2} ft^2$
49. Convert the following if-else to a single conditional statement
 if (qty >= 20)
 order = max + 5;
 else
 order = max;
50. Construct logical expressions to represent the following conditions
 i) ch is an uppercase letter
 ii) mark is greater than 85 and grade is A
51. Rahul , is a class XI science student with Computer Science as one of his subject .
 He is supposed to make and submit a project in C++ . Rahul's project partner suggests
 that many projects are available on internet which can be downloaded and submitted as
 their own .
 (i) What do you suggest to Rahul ?
 (ii) Give reason for your suggestion .
52. What is pointer ?
 53. What do you mean by Encapsulation ?
 54. What do you mean by application software ?
 55. 1 MB and 1GB is equitant to _____ and _____
 56. Write two major characteristics of second generation Computer.
 57. Name a mobile OS developed by Google for smart phones with touch screen applications .
 58. How is a compiler different from interpreter ?
 59. Name the type of software used for the following :
 (i) To reduce the size of any file not in use
 (ii) To scan the disk for viruses and removes them

60. Convert $(84)_{10} = (?)_2$
61. Convert $(2C9)_{16} = (?)_{10}$
62. Convert $(10101011)_2 = (?)_8$
63. In hexadecimal number system (12) is represented by symbol _____
64. Who developed Leibnitz's Calculator ?
65. What are the rules to be followed while naming the identifiers ?
66. Name any two utility software's .
67. Expand the following: BIOS, ASCII
68. Write the equivalent C++ expression for the following expressions
 i) $\sqrt{x^2 + 2xy}$ ii) $ut + \frac{1}{2}ft^2$
69. Convert the following if-else to a single conditional statement
`if(qty>=20)
 order = max +5;
else
 order = max;`
70. Construct logical expressions to represent the following conditions
 i) ch is an uppercase letter
 ii) mark is greater than 85 and grade is A
71. Rahul , is a class XI science student with Computer Science as one of his subject . He is supposed to make and submit a project in C++ . Rahul's project partner suggests that many projects are available on internet which can be downloaded and submitted as their own .
 (i) What do you suggest to Rahul ?
 (ii) Give reason for your suggestion .
72. Name the header files to which the following belongs to :
 (i) `strcmp()` (ii) `isdigit()`
73. Suggest suitable device or media for the following :
 (i) High quality print
 (ii) Economical printing of small quantities of data
 (iii) How is structure different from class ?
 (iv) Write two advantages of OOPs .
74. What is pointer ?
75. What do you mean by Encapsulation ?
76. Evaluate the following :
 (i) `a+ = a + ++a` { if a=20 initially }
 (ii) `char ch= 'D' + 10`
`cout<<ch ;`
77. Identify the errors in the following code segment
- ```
int main()

{ float length , breadth;

 cout<<"Enter two number";

 cin>>num>>auto;

 float area = length*breadth ;

}
```
78. What are the rules to be followed to write an identifier ?
79. Define abacus?

80. Define the term data and information.
81. Which software is used to convert the program written in assembly language into machine language.
82. Which utility software is used to free the disk space ?
83. Name two mobile operating system.
84. Convert  $(D27.A)_{16}$  to Binary.
85. Convert  $(423)_{10}$  to Octal.
86. Convert  $(101.011)_2$  to Decimal.
87. Expand ASCII and ISCII.
88. How signed and unsigned integers are different ?
89. Construct logical expressions to represent the following conditions.
  - (i) n is even and positive
  - (ii) c is an lowercase letter
  - (iii) age is in between 30-60
90. Define the term Hardware and software.
91. Which software is used to convert the program written in high level language into machine language.
92. Which utility software is used to decrease the file/folder size ?
93. Name two mobile operating system.
94. Convert  $(3A9)_{16}$  to Decimal.
95. Convert  $(613)_{10}$  to Octal.
96. Convert  $(1011.10001)_2$  to Decimal.
97. Expand ASCII and ISCII.
98. How signed and unsigned integers are different ?
99. What is booting ?
100. Who developed Pascal line & When ?
101. Write two features of 2<sup>nd</sup> Generation Computer.
102. Write the example of one Open source Software.
103. What is cascade I/O operator ?
104. What is an atomic data types ?
105. Evaluate :  $x+=x + ++x$  if  $x=20$  .
106. Rewrite the following statement using conditional operator .

```

If (alpha== 'A')
 account=200;
else if (alpha == 'B')
 account=400;
else
 account=500;

```

107. What is Cache memory ?
108. What is meant by open source software?
109.  $(537)_{10} = ( ? )_2$
110.  $(FABD)_{16} = ( ? )_8$
111.  $(110100110101)_2 = ( ? )_{16}$
112. Name the data type that has no modifier in C++.
113. Find the one's complement representation of (-17).
114. What is the allowable range of integer data type?
115. What will be the output of the following statement.
 

$y - x < 500 ? 150 : 50$

  - if (i)  $x = 300, y = 1700$
  - (ii)  $x = 700, y = 800$

116. Name two Super Computers developed in India .

117. What is Firmware ? Give an example.

118. Expand the following terms.

(i) CISC      (ii) SMPS

119. Arrange the following units in ascending order .

KB , BIT , GB , Nibble , PB , TB , MB .

120. Convert  $(8234)_{10}$  to Octal form .

121. Convert  $(47251)_8$  to binary form .

122. Convert  $(110111111001.101111)_2$  to Hexadecimal.

123. Name any two utility software.

124. What is the difference between 25 and 25L .

### **Section –B : Question carrying 2 Marks**

01. Differentiate between utility software and application software.

02. Differentiate between compiler and interpreter.

03. Write two advantages of dot matrix printer over ink jet printer

04. Write full forms of LCD , EPROM , ENIAC , ASCII

05. Write advantages of object oriented programming over procedural programming

06. What is encapsulation and polymorphism?

07. What is the role of indent and comment in a program?

08. What do you mean by dynamic initialization of a variable? Give example.

09. Name the bytes required for the following :-

float, double , long double , bool

10. What is the difference between type casting and automatic type conversion? Give suitable code to illustrate both?

11. A shopkeeper wants to keep a track of his inventory . He wants to give each item a code no, and a name . He also wants to store the price of each item alongwith quantity in stock .

**12. Rewrite the code using switch case**

```
int num , p ;
cin>>num ;
if(num == 5)
{
 P = num * 25 – 20 ;
 cout<< num + p;
}
```

```

else if (num== 10)
{
 P = num * 25 - 20 ;
 cout<< num - p ;
}

```

**13. What will be the output :**

```

#include<iostream.h>
void main()
{
 int i=0,ua=0,ub=0,uc=0,fail=0;
 while (i<=5)
 {
 switch (i++)
 {
 case 1:
 case 2: ++ua;
 case 3:
 case 4: ++ub;
 case 5: ++c;
 default :++fail;
 }
 }
 cout<<fail<<' ' <<uc<<' ' <<ub<<' ' <<ua<<endl;
}

```

14. Write a program to accept a number and check whether it is palindrome or not  
Ex- 121 is a palindrome and 123 is not palindrome no.
15. Differentiate between utility software and application software
16. Differentiate between compiler and interpreter
17. Write two advantages of dot matrix printer over ink jet printer
18. Write fullforms of TFT , EPROM , EDVAC , ASCII
19. Write advantages of object oriented programming over procedural programming.
20. What is abstraction and polymorphism ?
21. What is the role of indent and comment in a program ?
22. What do you mean by dynamic initialization of a variable ? Give example.
23. Name the bytes required for the following :-  
float , double , long double , int

24. What is the difference between type casting and automatic type conversion? Give suitable code to illustrate both ?
25. A shopkeeper wants to keep a track of his inventory . He wants to give each item a code no, and a name . He also wants to store the price of each item alongwith quantity in stock .

**26. Rewrite the code using switch case**

```

int num , p ;
cin>>num ;
if(num == 6)
{
 P = num * 25 - 20 ;
 cout<< num + p;
}
else if (num== 4)
{
 P = num * 25 - 20 ;
 cout<< num - p ;
}

```

**27. What will be the output :**

```

#include<iostream.h>
void main()
{
int i=0,ua=0,ub=0,uc=0,fail=0;
while (i<=5)
{
switch (i++)
{
case 1:
case 2: ++ua;
case 3:
case 4: ++ub;
case 5: ++uc;
default :++fail;
}
}
cout<<fail<<' '<<uc<<' '<<ub<<' '<<ua<<endl;
}

```

28. Differentiate between Round robin scheduling and Response ratio scheduling.



29. What is the difference between interpreter and assembler ?
30. Write the difference between entry control loop & exit control loop .
31. What is Comments ? Explain comments with suitable examples .
32. Pick keywords & identifier from the following list :  
 (i) static (ii) Rate (iii) switch (iv) Income\_tax
33. Write the difference between logical & syntactical errors .
34. What is the role of main() ?
35. Write the header files required for the following :  
 (i) sqrt() (ii) randomize() (iii) toupper() (iv) abs()
36. Evaluate the following :  
 (i) `a+ = a + ++a` { if a=20 initially }  
 (ii) `char ch= 'D' + 10`  
`cout<<ch ;`
37. Differentiate between the following with the help of examples :  
 (i) 13 and 013  
 (ii) 13 and 0X13
38. The output of the following program code is 'd' . Suggest the way to modify the answer i.e. 100 without changing the data type of the variable . Rewrite the code and mention the term used for it .
- ```
#include<iostream.h>
void main()
{
  char ch='D';
  if(ch>=65 &&ch<=90)
    ch=ch+32;
  cout<<"\n Equivalent value is "<<ch;
}
```
39. Write the Size of the following arrays
 a) double arr1[10], (b) int arry2[3][5]
40. Write C++ shorthand notation for the following:
 a) `num=num/10` (b) `x= x+1`
41. Rewrite the following program after removing syntactical errors, underline each Correction.
- ```
include<iostream.h>
void main()
{ const MAX = 0 ;
 int a, b;
 cin<<a>>b;
```

```

 if(a > b)
 MAX = a;
 for(x=0;x<MAX; x++)
 cout<<x;
}

```

42. Write the output of the following program :

```

#include<iostream.h>
void main()
{ int x=5, y=5 ;
 cout<<x--;
 cout<<-- x<<endl ;
 cout<<y -- << -- y ;
}

```

43. How is a compiler different from interpreter ?

44. Pick keywords & identifier from the following list :

(i) `_abc` (ii) `break` (iii) `INT` (iv) `salary`

45. Which of the following are hardware and software?

(i) Capacitor (ii) Internet explorer (iii) Hard disk (iv) UNIX

46. Define the following:

i) DRAM                      ii) Serial Port

47. What is the difference between `if` and `switch` statements ?

48. What will be the output of the following program segment ?

If input is as: (a) `c` (b) `m` (c) `a` (d) `v`

.....

```

cin >>ch;
switch (ch)
{ case 'c': cout<<"Computer Science";
 case 'm': cout<<"Mathematics";
 break;
 case 'a': cout<<"Accountant";
 break;
 default: cout<<" wrong choice";
}

```

49. Write the output of the following program :

```

#include<iostream.h>
void main()
{ int x=5, y=5 ;
 cout<<x--;
 cout<<-- x<<endl ;
 cout<<y -- << -- y ;
}

```

50. What will be the output of following:

(Consider all the necessary header files are included)

```
cout<<"Computer"<<"\b"<<"Science"<<endl<<"Is "<<"\t"<<"My favourite subject";
```

51. Convert the following C++ code using switch.. case statement.

```

int ch;
cin>>ch;
if(ch == 1)
cout<<" Laptop";
else if(ch == 2) | | (ch==3))
 cout<<"IPOD"; cout<<"Desktop ";
else if(ch= = 4)
 cout<<"Notebook";
else
 cout<<"Invalid Choice";
}

```

51. What is dangling else statement ? How do you override the dangling- else problem?

52. Differentiate between Preemptive and non-preemptive scheduling .

53. Define any two types of packages .

54. Write the difference between Syntax error and Logical error .

55. What do you mean by Polymorphism ? Give one example .

56. Explain how are the following two constant are different :

(i) 'S' and " S"

(ii) 13 and 0X13

57. Write a C++ program to accept customer number , name , number of units consumed . 58.

Prepare a bill/ Tariff according to the following condition .

| UNITS CONSUMED          | TARIFF           |
|-------------------------|------------------|
| For the first 100 units | Rs 0.40 per unit |
| For the next 200 units  | Rs 0.50 per unit |
| For the next 300 units  | Rs 0.75 per unit |
| For the next 400 units  | Rs 1.00 per unit |
| Beyond 1000 units       | Rs 1.50 per unit |

58. Write a C++ Program to accept a character and convert into capital letter , if it is small letter and vice versa .

59. Briefly distinguish between digital and analog computer.
60. Explain about different types of booting.
61. What are Freeware and Shareware ?
62. What is an Operating System ? What are its functions ?
63. Which activities are performed by an Operating System as a resource manager ?
64. Convert  $(4327.561)_8$  to Hexadecimal.
65. Find the eight-bit two's complement form of  $(-13)$
66. Differentiate between CISC and RISC.
67. How 'a', a, '\a' and "a" are different ?
68. What are the different ways to represent an integer constant in C++ ?
69. What is a reference variable ? Give example.
70. What are the different values associated with a variable ? Explain.
71. What is an infinite loop. Give one example.
72. What is a hybrid computer ? Write about its applications.
73. Explain about different types of booting.
74. What are Freeware and Shareware ?
75. What is an Operating System ? What are its functions ?
76. Which activities are performed by an Operating System as a resource manager ?
77. Convert  $(4327.561)_8$  to Hexadecimal.
78. Find the eight-bit two's complement form of  $(-13)$
79. Differentiate between CISC and RISC.
80. How 45 and 45U are different ?
81. What are the different ways to represent an integer constant in C++ ?
82. What is a constant ? Give example.
83. What are the different values associated with a variable ? Explain.
84. What is an empty loop. Give one example.
85. What is meant by the term throughput ?
86. What are the major strengths & weaknesses of computer ?
87. What is meant by the terms multiprogramming and multitasking ?
88. What is the difference between Class and object ?
89. What do you mean by Data Abstraction & Module ?
90. What is the difference between 'x' and "x" in C++ ?

91. Differentiate between a Run time Error and Syntax Error.
92. How can we declare & Initialise variable.
93. What is the difference between 25L and 25 ?
94. Find the two's complement of -20.
95. What will be the result of following expression if a=3, b=6, c=4, d=2 ?  
 $a+b>c \ \&\& \ b-c<d \ || \ b+d \geq a+c$  ?

96. Write output of the following program:

```
#include<iostream.h>

void main(){

int f=1,i=2;

do

{

f*=i;

}while(++i<5);

cout<<f; }
```

97. Find out the syntax errors(s) if any in the following program and correct them . Underline each correction .

```
#include[iostream.h]
#include[conio.h]
int main()
{
clrscr()
int num;
cout<< "\n enter a number:";
cin<<num;
for(int i=1;i<11;++i)
Cout<< "\n"<<num<< " * "<<i<< " ="<<num*i;
return 0;
}
```

98. Explain data and information with the help of example.
99. Differentiate between primary memory and secondary memory. Give examples of each type of memory.
100. How is a compiler different from interpreter?
101. What do you mean by ports? Explain usage of different types of ports.
102. What is a cache memory? How is it different from the primary memory?
103. Write the full form of the following:

(i) WORM (ii) RAID (iii) RISC (iv) USB

104. Represent (-25) in sign and magnitude form.

105. How is logical operator && (and) different from logical || (or) operator. Explain with suitable example.

106. What is inheritance? Explain with a suitable example.

107. Determine the number of bytes required to store

BookNo of integer type

Price of float type(price per copy)

BookType of char type

ISBN of long integer type

108. Which of the following are valid identifier?

MyFile, 25Class, DATE25\_9\_2015, \_CHK\_DISK, break, %age Total\_Salary, goto

109. What is polymorphism? Explain with the help of suitable example.

110. Name the header file of the following build-in function.

Setw(), pow(), getch(), floor()

111. Find the error from the following C++ statements.

(i) cout<<"a="a;

(ii) for(x ;=10;x<50;x+=5)

(iii) x=+40;

(iv) break=x\*y

112. Find the syntax error(s) if any in the following program.

```
include<iostream.h>
```

```
void main()
```

```
{
```

```
 const max=0;
```

```
 int a,b;
```

```
 cin<<a>>b;
```

```
 if(a>b) max =a;
```

```
 for(x=0;x<max;x++) cout<<x
```

```
}
```

113. Rewrite the following code fragments using switch-case.

```
char code
```

```
cin>>code;
```

```
if (code == 'A')
```

```
cout<<"Accountant";
```

```
else
```

```
if (code == 'C' || code == 'G')
```

```
cout<<"Grade IV";
```

```
else
```

```
cout<<"Financial Advisor";
```

114. Differentiate between Implicit and Explicit Type Conversion ? Define with an example.

115. What do you mean by Abstraction and Encapsulation ?

116. Define : (i) Polymorphism (ii) Inheritance

117. Differentiate between Semantics errors and Syntax errors.

118. Convert  $(A9DF)_{16}$  to Octal form.

119. Convert  $(4238.25)_{10}$  to binary form.

120. Differentiate between Multiprocessing and Multiprogramming Operating System .

121. Distinguish between Compiler and Interpreter .

122. Write any four characteristics of a computer ?

123. Distinguish between SRAM and DRAM .

124. Differentiate between Serial Port and Parallel Port.

125. Distinguish between Primary Memory and Secondary Memory.
126. Write any four characteristics of a computer ?
127. Distinguish between RAM and ROM .
128. Differentiate between Serial Port and Parallel Port.
129. Distinguish between Internal Memory and External Memory.
130. What is a Class and an object ?
131. Define : (i) Data Encapsulation                      (ii) Polymorphism
132. Differentiate between Semantics errors and Syntax errors.
133. Differentiate between Type Promotion and Type Casting ? Define with an example.

**Section –C : Question carrying 3 Marks**

01. What is cache memory? Explain the different types of it .
02. What will be the value of k , after execution of the following statements , if a is 5 and k is 10 initially .  
 (a) k = a = 9 ;                      (b) k = a == 17 ;                      (c) k += a -- + a++
03. Write the corresponding c++ expression for the following mathematical expressions:

$$\sqrt{a^2 + b^2} \quad + c^2 \quad (b) |e^x - x| \quad (c) p + q / (r + s)^2$$

04. What is Open Source Software ? Give any two examples.
05. What will be the value of k , after execution of the following statements ,  
 if a is 15 and k is 20 initially .  
 (a) k = a = 3 ;                      (b) k = a == 3 ;                      (c) k = ++ a + a++
06. Differentiate between Implicit and Explicit type conversion with an example.
07. Rewrite the following using while loop  

```
int n=15 , sume=0;
for(int i=2;i<=n; i = i+2)
{ if(i%3==0)
 Sume+=i;
}
```
08. Convert the following c++ code using if-else statement :

```
void main()
{ char ch;
 cout<<"\n Enter your choice(a,b,c)";
 cin>>ch;
 switch(ch)
 {
 case 'A':
 case 'a': cout<<"\n Addition" ;
 break;
 case 'S':
 case 's': cout<<"\n Subtraction" ;
 break;
 case 'M':
 case 'm': cout<<"\n Multiplication" ;
 break;
 }
}
```

```

 default: cout<<"\n Wrong choice!!"
 break;
 } } .

```

09. Write a C++ Program to accept a character and convert into capital letter , if it is small letter and vice versa .

10. What will be the output of the following code fragment?

```

int x= y =10;
if(M<100)
{
 if(N>50)
 x=x+1 ;
}
else
 y=y+1;
cout<<x<<" \t"<<y;

```

If the input given is shown below :

- i) M=60 , N=70
- ii) M=30 , N=30
- iii) M=120 , N= 100

11. Write a program in C++ to enter roll number , marks in 3 subject of a student . Calculate the Average mark and print the category of him/her according to the given format .

| Average (%)  | Category  |
|--------------|-----------|
| 0-34         | Fail      |
| 35-59        | Pass      |
| 60-79        | Good      |
| 80 and above | Very Good |

12. Write a Program in C++ to calculate area of circle , a rectangle or a triangle depending upon user's choice using switch .

13. Give the difference between type casting and automatic type conversion. Also give suitable example.

14. What output will the following code fragment produce ?

```

void main()
{ int a=5;
 cout<<a++<<endl;
 cout<<++a<<endl;
 cout<<!(a==5)<<endl;
}

```

15. What will be the output of following program segment ? If the input is

```

 (i)p (ii)m (iii)b
void main()
{ char sub;
 cin>>sub;
 switch(sub)
 {
 case 'p': cout<<"Physics\n";

```



```

case 'c': cout<<"Chemistry\n";
 break;
case 'm': cout<<"Mathematics\n";
case 's': cout<<"Comp sc\n";
 break;
default: cout<<"Incorrect code\n";
}

```

16. Write a C++ program to input the value of n and display all prime numbers in between 1 and n.
17. Give the difference between type casting and automatic type conversion. Also give suitable example.
18. What output will the following code fragment produce ?

```

void main()
{ int a=1;
 cout<<++a<<endl;
 cout<<a++<<endl;
 cout<<(a= =3)<<endl;
}

```

19. What will be the output of following program segment ? If the input is  
 (i)p           (ii)m           (iii)b

```

void main()
{ char sub;
 cin>>sub;
 switch(sub)
 {
 case 'p': cout<<"Physics\n";
 case 'c': cout<<"Chemistry\n";
 break;
 case 'm': cout<<"Mathematics\n";
 case 's': cout<<"Comp sc\n";
 break;
 default: cout<<"Incorrect code\n";
 }
}

```

20. Write a C++ program to input the value of n and display all prime numbers in between 1 and n.
21. A. Give example of some non-preemptive scheduling techniques
22. What is a variable ? How many values are associated with it ?
23. What is the difference between SRAM and DRAM ?
24. What are the types of Buses ?
25. Construct logical expressions to represent the following conditions :
  - i. Weight is greater than or equal to 115 but less than 125.
  - ii. x is odd.
  - iii.ch is an uppercase letter.
26. What is an operating system? Explain the functions of operating system.
27. Find the output of the following program.

```

#include<iostream.h>
void main()
{

```

```

Int first=25, sec=30;
for (int i=1; i<=2 ; i++)
{
 cout<<"Output 1="<<first++<<" &" <<sec+5<<endl;
 cout<<"Output 2="<<-- sec<<" &"<< first-5<<endl;
}
}

```

28. Roma want to find the reverse of a number entered through keyboard. However a certain program code is given. Fill in the blanks to find the reverse of the number.

```

void main()
{
 int n, p, r=_____ ;
 cin>>n;
 while (_____)
 {
 p = _____ ;
 r = _____ ;
 n = _____ ;
 }
 cout << _____ ;
}

```

29. Convert the following code segment into switch case statement.

```

int ch;
cin>>ch;
if (ch==1)
 cout<<"Laptop";
else if (ch==2)
 cout<<"Desktop";
else if (ch==3)
 cout<<"Notebook";
else
 cout<<"Invalid choice";

```

30. Write a C++ program that input three number and print the biggest number.

31. What is Cache Memory ? Write any four characteristics of Cache Memory .

32. What is a Freeware ? Give any two examples of Freeware .

33. Write a C++ program that inputs the marks of a student in 5 subjects (Out of 100) and prints the percentage of marks.

34. Write a C++ program to convert a given time in seconds into Hours, Minutes and Seconds .

35. What is a reference variable ? Explain with an example.

36. Write a C++ program to input the radius of a circle and calculate its area and perimeter.

(Area of Circle=  $\pi r^2$  , Perimeter of Circle=  $2\pi r$ )

## Section –D : Question carrying 4 Marks

01. Explain the two main functions of operating system.  
02. Write a program to generate the following output :

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

03. Write a program to generate the following output :

```
1
1 2 1
1 2 3 2 1
1 2 3 4 3 2 1
```

04. Write a program in C++ to enter roll number , marks in 3 subject of a student . Calculate the Average mark and print the category of him/her according to the given format .

| Average (%)  | Category  |
|--------------|-----------|
| 0-34         | Fail      |
| 35-59        | Pass      |
| 60-79        | Good      |
| 80 and above | Very Good |

05. Write a C++ program to accept customer number , name , number of units consumed . Prepare a bill/ Tariff according to the following condition .

| UNITS CONSUMED          | TARIFF           |
|-------------------------|------------------|
| For the first 100 units | Rs 0.40 per unit |
| For the next 200 units  | Rs 0.50 per unit |
| For the next 300 units  | Rs 0.75 per unit |
| For the next 400 units  | Rs 1.00 per unit |
| Beyond 1000 units       | Rs 1.50 per unit |

06. Write a Program in C++ to calculate area of circle , a rectangle or a triangle depending upon user's choice using switch .
07. Answer the following questions.  
(i) How data are transmitted in Parallel and serial ports ? Explain with example.  
(ii) What is microprocessor ? What is its role in a computer functioning ?
08. Answer the following questions.  
(i) What do you mean by Abstraction and Encapsulation ?  
(ii) What is the difference between an object and a class ?
09. Write a program to a read a character and display its ASCII value.
10. Write a C++ program to input 3 numbers. Display the smallest one using conditional operator.
11. Find the output of following program segments.  
(i) void main( )  
{

```

for(int i=1;i<=10;i++)
cout<<i++;
cout<<'\n'<<i;
}

```

(ii) void main( )

```

{
int no=1;
while(no<10)
{
if(no == 5)
break;
cout<<no;
}
cout<<'\n'<<no;
}

```

12. Answer the following questions.

- (i) How data are transmitted in Parallel and serial ports ? Explain with example.
- (ii) What is microprocessor ? What is its role in a computer functioning ?

13. Answer the following questions.

- (i) What do you mean by Abstraction and Encapsulation ?
- (ii) What is the difference between an object and a class ?

14. Write a program to read a character and display its ASCII value.

15. Write a C++ program to input 3 numbers. Display the smallest one using conditional operator.

16. What are the functions of Operating System.

17. Convert the following :-

1.  $(24.25)_{10} = ( ? )_2$
2.  $(1100111)_2 = ( ? )_8$
3.  $(FACE)_{16} = ( ? )_{10}$
4.  $(11011110101110)_2 = ( ? )_{16}$

17. Write a C++ program to print Fibonacci series i.e, 0 1 1 2 3 5 8 ..... n

18. Write a program to generate the following output:

```

5
4 4
3 3 3
2 2 2 2
1 1 1 1 1

```

19. Write a program to find the sum of the following series taking only first 5 terms.

$$\text{Sum} = \frac{x^3}{3!} + \frac{x^5}{5!} + \frac{x^7}{7!} + \dots$$

20. What will be the output of the following programs ?

```

(i) # include<iostream.h>
void main()
{ int a=5;
cout<<a++<<endl;
cout<<!(a==5)<<endl;
}

```

```
(ii) # include<iostream.h>
void main()
{
int a, b, z;
a=17 ;
b= 10 ;
z= a>b ? 500 : 700 ;
cout<< z ;
z+=5 ;
cout<< z;
}
```

21. Reena got an assignment on the topic word processing software. Help her to solve the assignment.

What is word processing software?

Which type of software is word processor?

Give some examples equivalent to type of word processing software.

Give some examples of word processing program.

22. Write a program to input a number and check the number is prime or not.

23. Write a program in C++ that input salary of an employee and calculate bonus as per the table given below.

| Salary               | Bonus in % |
|----------------------|------------|
| >=50,000             | 12.5%      |
| >=30,000 but <50,000 | 8.5%       |
| <30,000              | 5%         |

24. Write a C++ program that input a number and check the number is Armstrong number or not. If the number is Armstrong then print the sum of the digit otherwise display suitable message on the screen.

25. Write a program to calculate the roots of a quadratic equation according to the given conditions. Calculate  $d = b^2 - 4ac$ .

If  $d > 0$ , then  $r_1 = (-b + \sqrt{d}) / 2a$  and  $r_2 = (-b - \sqrt{d}) / 2a$

If  $d = 0$ , then  $r_1 = (-b + \sqrt{d}) / 2a$

If  $d < 0$ , then the message is "The equation has no any real roots."

26. 1. Write an equivalent C++ expression for the following.

(i)  $X = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$

(ii)  $\left(\frac{5x+2y}{3x-5y}\right)^{3/2}$

2. Evaluate the following expressions :

(i)  $(a - b) < c \ \&\& \ b + c > a \ || \ a - c \leq b - a + c$  , if  $a = 4$  ,  $b = 7$  and  $c = 10$

(ii)  $f = (++b) * b - a$  , if  $a = 5$  and  $b = 3$  .

27. What is Operating System? Write any four basic functions of an OS.

28. Write a program to generate the following output :

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

29. Write a program in C++ that input salary of an employee and calculate bonus as per the table given below.

| Salary                       | Bonus in % |
|------------------------------|------------|
| $\geq 50,000$                | 10%        |
| $\geq 30,000$ but $< 50,000$ | 5%         |
| $< 30,000$                   | 3%         |

30. Write a program to find out the HCF and LCM of any two given numbers.

\*\*\*\*\*