

SUBJECT : COMPUTER SCIENCE (SET-I)**Time : 3 Hrs.****M.M.: 70****General Instructions :****(i) All the questions are compulsory.****(ii) Programming language: C++**

- Q1. (a) Distinguish between Input devices and Output devices. (2)
- (b) What are the software classifications? Discuss their functioning in brief (2)
- (c) What is the function of ALU? (1)
- (d) Write a short note on the programming in low level language. (1)
- (e) (i) Convert following number from decimal to hexadecimal. 735649 (1)
- (ii) Convert octal to hexadecimal. 765.43 (1)
- (iii) Convert decimal to binary. 6785.23 (1)
- (f) What is the significance of Task Bar? (1)
- Q2. (a) (i) What is meant by the term Real Time OS? (1)
- (ii) what are keywords? Can keywords be used as identifiers? (2)
- (b) What are String literals in C++? What is the difference between character constants and string literals in terms of size? (2)
- (c) (i) What kind of program elements are the following : 373.33, 26, '@', "@ (2)

- (ii) Which header file must be included in source file to use cin? (1)
 - (d) Write a program to input any radius and height, and to find volume of the cylinder. (2)
- Q3. (a) What do you mean by fundamental data types? How many fundamental data types do C++ provides? Give all names. (2)
- (b) Write a program to input any two numbers and one arithmetic operator and to print the result based upon the arithmetic operator. (3)
 - (c) (i) Explain the concept of array and its purpose. (2)
 - (ii) What do you understand by class in C++? Explain with an example. (2)
 - (d) What will be the value of the following, if k = 10 initially? (1)
- (i) $(8 * k++) \% 10$ (ii) $(8 * ++k) \% 10$
- Q4. (a) What is type conversion? What is meant by type casting? (2)
- (b) (i) Construct logical expressions to represent the following conditions : (2)
 - a1. Height is greater than or equal to 100 but less than 150.
 - a2. A is in upper case letter.
 - (ii) What are relational operators. (1)
 - (c) Write a program to input principal amount and time. If time is more than 10 years, calculate the simple interest with rate 8% otherwise calculate it with rate 12% per annum. (3)

- (d) State why are following expressions invalid?
Write the correct statements. (2)

(i) `arm = 5100 || val < 35`

(ii) `age > 70 && < 90`

- Q5. (a) (i) Differentiate between syntax errors and semantic errors. (2)

(ii) Differentiate between while loop and do...while loop. (2)

- (b) (i) What is an iteration statement? Which iteration statements do C++ provides. (2)

(ii) What is conditional operator? Explain with an example. Compare condition operator with if statement. (2)

- (c) Find Two's complement of (-78) [use one byte] (2)

- Q6. (a) Write a "for loop" that display even numbers from 2 to 100 (2)

- (b) Rewrite the following program after removing the syntactical errors(s) if any. Underline each correction : (2)

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

```
void main( )
```

```
{
```

```
    Int a, b;
```

```
    Cout << "enter any two numbers";
```

```
    cin >> a, b;
```

```
    cout << a + b;
```

```
}
```

- (c) (i) Find the output of the following program : (2)

```
for (r = 0; r < 2; r++)
```

```
{
```



```

int sum = 0;
for (c = 2; c < 5; c++)
    sum += c;
sum = sum + r;
cout << "sum =" << sum << endl;
}

```

(ii) `int i = 1, k = 0;` (2)

```

if (i)
    cout << "Print True";

```

```

else
    cout << "Print False";

```

```

if (k == 0)
    cout << "Print True";

```

```

else
    cout << "Print False";

```

(d) Write an equivalent "do...while loop" for the following "for loop" (2)

```

for (int s = 0, i = 2; i <= 25; i += 2)
    s += i;

```

Q7. (a) Write a program to print the following format.

```

A
A B
A B C
A B C D
A B C D E

```

(3)

(b) Write a program to find the sum at the following series.

(i) $7 + 14 + 21 + \dots n \text{ terms}$ (3)

(ii) $x/1! - x^3/3! + x^5/5! \dots (2n-1) \text{ terms}$ (4)

(4)