

**ICSE Board**  
**Class X Computer Applications**  
**Board question paper - 2016**

Total time : 2hr

Max Marks : 80

**General Instructions :**

*Answer to this paper must be written on the paper provided separately.*

*You will **not** be allowed to write during the first 15 minutes.*

*This time is to be spent in reading the question paper.*

*The time give at the head of the paper is the time allotted for writing the answers.*

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*Attempt **all** questions from **Section A** and any four questions from **Section B**.*

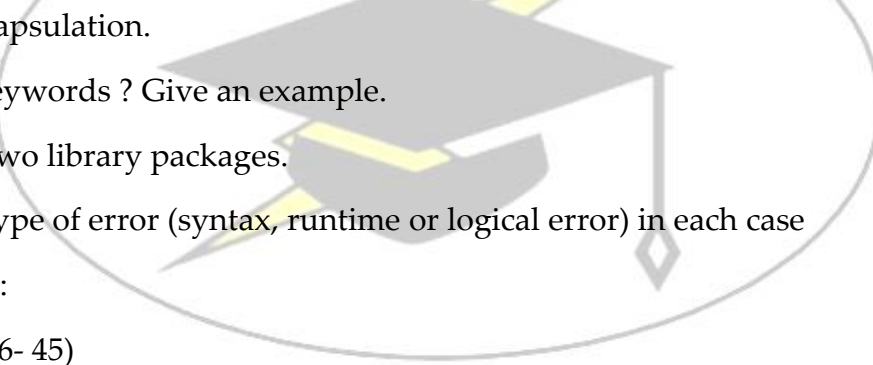
*The intended marks for questions or parts of questions are given in brackets [ ].*

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**SECTION - A (40 Marks)**

*Attempt **all** questions from this section*

**Question 1.**

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- (a) Define Encapsulation. [2]
- (b) What are keywords ? Give an example. [2]
- (c) Name any two library packages. [2]
- (d) Name the type of error (syntax, runtime or logical error) in each case given below : [2]
- (i) Math.sqrt (36- 45)
- (ii) int a;b;c;
- (e) If int x[ ] = {4, 3, 7, 8, 9, 10}; what are the values of **p** and **q** ? [2]
- (i) p = x.length
- (ii) 4 = x[2]+ x[5] \*x[1]

**Question 2.**

- (a) State the difference between == operator and equals () method. [2]
- (b) What are the types of casting shown by the following examples : [2]
- (i) char c = (char)120;
- (ii) int x = 't';

- (c) Differentiate between formal parameter and actual parameter. [2]
- (d) Write a function prototype of the following : [2]
- A function **PosChar** which takes a string argument and a character argument and returns an integer value.
- (e) Name any two types of access specifiers. [2]

### Question 3.

- (a) Give the output of the following string functions : [2]
- (i) "MISSISSIPPI".indexOf('S') + "MISSISSIPPI".lastIndexOf('I')
- (ii) "CABLE".compareTo("CADET")
- (b) Give the output of the following math functions . [2]
- (i) Math.ceil(4.2)
- (ii) Math.abs(-4)
- (c) What is a parameterized constructor? [2]
- (d) Write down java expression for : [2]
- $T = \sqrt{A^2 + B^2 + C^2}$
- (e) Rewrite the following using ternary operator : [2]
- if (x % 2 == 0)
- System.out.print("E VEN ");
- else
- System.out.print("ODD ");
- (f) Convert the following while loop to the corresponding for loop : [2]
- int m = 5, n = 10;
- while (n >= 1)
- {
- System.out.println(m\*n);
- n- -;
- }
- (g) Write one difference between primitive data types and composite data types. [2]
- (h) Analyze the given program segment and answer the following questions : [2]

- (i) Write the output of the program segment
- (ii) How many times does the body of the loop gets executed ?

```
for (int m=5; m<=20; m+=52)
{
    if (m%3==0)
        break;
    else
        if (m %5==0)
            System.out.println(m);
            continue;
}
```

- (i) Give the output of the following expression .

[2]

```
a+= a++ + ++a + --a + a- -;
when a = 7 ,
```

- (j) Write the return type of the following library functions.

[2]

- (i) isLetterOrDigit(char) (ii) replace(char, char)

### SECTION-B (60 Marks)

Attempt **any four** questions from this Section.

The answers in this Section should consist of the **Programs in either Blue J environment or any program environment with Java as the base.**

Each program should be written using **Variable descriptions/Mnemonic**

**Codes** so that the logic of the program is clearly depicted.

**Flow-Charts and Algorithms are not required.**

#### Question 4.

Define a class named **BookFair** with the following description :

[15]

Instance variables/Data members :

String Bname - stores the name of the book

double price - stores the price of the book

Member methods :

(i) BookFair () - Default constructor to initialize data members.

(ii) void Input() - To input and store the name and the price of the book.

- (iii) void calculate() - To calculate the price after discount. Discount is calculated based on the following criteria.

Price	Discount
Less than or equal to Rs 1000	2% of price
More than Rs 1000 and less than or equal to Rs 3000	10% of price
More than Rs 3000	15% of price

- (iv) void display() - To display the name and price the book after discount.

Write a main method to create an object of the class and call the above member methods.

### Question 5.

Using the switch statement, write a menu driven program for the following :

- (i) To print the Floyd's triangle [given below] :

[15]

```

1
2  3
4  5  6
7  8  9  10
11 12 13 14 15

```

- (ii) To display the following pattern

```

I
I C
I C S
I C S E

```

For an incorrect option, an appropriate error message should be displayed.

### Question 6.

Special words are those words which starts and ends with same letter.

Examples :

[15]

EXISTENCE

COMIC

WINDOW

Palindrome word are those words which read the same from left to right and vice-versa.

Examples :

MALA YALAM

MADAM

LEVEL

ROTATOR

CIVIC

All palindromes are special words, but all Special words are not palindromes.

Write a program to accept a word . check and print whether the word is a palindrome or only special word.

### Question 7.

Design a class to overload a function SumSeries() as follows :

[15]

- (i) void SumSeries(int n, double x) - with one integer argument and one double argument to find and display the sum of the series given below :

$$S = \frac{x}{1} - \frac{x}{2} + \frac{x}{3} - \frac{x}{4} + \frac{x}{5} \dots \dots \dots \text{to } n \text{ terms}$$

- (ii) void SumSeries() - To find and display the sum of the following series :

$$S = 1 + (1 \times 2) + (1 \times 2 \times 3) + \dots \dots \dots + (1 \times 2 \times 3 \times 4 \dots \dots \dots \times 20)$$

### Question 8.

Write a program to accept a number and check and display whether It is a **Niven** number or not.

[15]

(Niven number is that number which is divisible by its sum of digits).

Examples :

Consider the number 126.

Sum of its digits is  $1 + 2 + 6 = 9$  and 126 is divisible by 9.

**Question 9.**

Write a program to initialize the seven Wonders of the World along with their locations in two different arrays. Search for a name of the country input by the user. If found, display the name of the country along with its Wonder, [15]  
otherwise display "Sorry Not Found !"

Seven wonders - CHICHEN ITZA, CHRIST THE REDEEMER, TAJMAHAL, GREAT  
WALL OF CHINA, MACHU PICCHU, PETRA, COLOSSEUM

Locations - MEXICO, BRAZIL, INDIA, CHINA, PERU, JORDAN, ITALY

Example - Country Name : INDIA                      Output : INDIA - TAJMAHAL  
Country Name : USA                                  Output : Sorry Not Found!

\*\*\*\*\* END \*\*\*\*\*

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