MAR THOMA RESIDENTIAL SCHOOL

ANNUAL EXAMINATION 2018-2019

CLASS: XI **MARKS:70**

COMPUTER SCIENCE **TIME: 3 HRS**

PART- I (20 Marks)

Answer ***all*** questions

Question 1

a) Convert $(A2C8)_{16}$ to its Binary equivalent . **(1)**

b) What are Mutator methods? **(1)**

c) What is Spam. **(1)**

d) What is Recursion? What are the types of Recursion? **(1)**

e) Draw the truth table for the following **(1)**

A'B'C + AB'C+A'BC'

Question 2

a) Explain Math.floor() and Math.ceil() with examples. **(2)**

b) What is Coercion and Type casting? Give examples. **(2)**

c)What is Fall Through in Java programming? Give an example. **(2)**

d) Perform the following operation **(2)**

i.10010.111 * 1001.01

e) Define compareTo() function with an example **(2)**

Question 3

a) Write a class with the name Perimeter using function overloading that computes the perimeter of a square, a rectangle and a circle **(5)**

Perimeter of a square = 4*s

Perimeter of a rectangle = 2*(l+b)

Perimeter of a circle = 2*3.14*r

PART- II (50 MARKS)

Answer ***six*** questions in this part, choosing ***two*** questions from *Section A*, ***two*** from *Section B* and ***two*** questions from *Section C*

SECTION –A

Answer ***any two*** questions

Question 4

a) State Commutative law and Distributive law and verify it using truth tables. (5)

b) Draw the logic circuit for (3)

i. ABC + A'B'C' + AB'C

ii. A (A+B') (A'+B) B'

c) Add the Octal number $(4567)_8$ and $(6777)_8$ (2)

Question 5

a) Explain any two Derived logic gates with its truth table and logic gates. (5)

b) Subtract the following (3)

i. $(1000111)_2 - (110011)_2$

ii. $(101101)_2 - (11010)_2$

c) What is Converse and Inverse in Propositional logic? Give Examples. (2)

Question 6

a)Write a note on Half Adder and Full Adder with its truth table and logic gates. (5)

b) Prove the following by using truth table (3)

i. (P <=> Q) = (P => Q) (Q =>P)

ii. (M' + MN) = (M => N)

c) Perform the following operation (2)

101010011 / 101

SECTION B

Answer ***any two*** questions

Question 7 **(10)**

Define a class Employee having the following description:

Data members/Instance variables:

int pan : to store Personal Account number

String name: to store name

double income : to store annual taxable income

double tax : to store tax that is calculated

Member functions :

void input() : to accept pan number,name ,taxable income.

void calculate() : calculate the tax of an employee

void display() : to display the details of the employee in following format

Pan number	Name	Income	Tax
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The program computes the tax according to the conditions given below

Total income	**Tax Rate**
Upto Rs.2,50,000	No tax
From Rs.2,50,001 to Rs 5,00,000	10% of the income exceeding Rs 2,50,000
From Rs.5,00,001 to Rs. 10,00,000	Rs.10,000 + 20% of the income exceeding Rs.5,00,000
Above Rss.10,00,000	Rs.25,000 + 30% of the income exceeding Rs.10,00,000

Question 8 **(10)**

Write program in Java to store the numbers in a 5*5 matrix in a Double Dimensional Ar
Display the sum of the elements that are above and below left diagonal of the matrix.

Question 9 (10)

Define a class called Student to check whether a student is eligible for taking admission in Std XI with the following specifications:

Instance variables/Data members:

String name : to store name

int mm : to store Maths marks

int scm : to store Science marks

int comp : to store Computer marks

Member methods:

Student() : parameterized constructor to initialize the data members by accepting details of a student

Check() : to check the eligibility for course with the following details

Marks	Eligibility
90% or more in all the subjects	Science with computer
Average marks 90% or more	Bio- Science
Average marks 80% or more and less than 90%	Commerce

Display() : to print the eligibility

Write the main method to accept the values ,create an object of the class and call all the above member methods.

SECTION C

Answer ***any two*** question

Question 10

a)What is String Tokenizer? Write a program to find the number of tokens present in a string using String Tokenizer. (4)

b) What do you mean by Phishing? (1)

Question 11

a)Write an algorithm to input a number and find the sum of digits of the number

b)What is Intellectual Property Right? List its properties.

Question 12

Create a package Weather that defines a class Temperature as described below:

Data members/instance variables:

double max : to store maximum temperature

double min : to store minimum temperature

Member methods:

void accept() : to accept the maximum and minimum temperatures in Celsius

void compute() : to compute the maximum and minimum temperatures to Fahre
the formula

$$f = (9C/5) + 32$$

void display() : to display the maximum and minimum temperatures in Fahrenhei

Write a main class to import the package Weather. Create an object of the class Temperature and call the member methods.