GUIDELINES

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ICSE COMPUTER APPLICATION

MOCK PAPER – 1 (2024)

Time: 1 hours	**Total Marks: 100**

General Instructions:

1. *Answers to this Paper must be written on the paper provided separately.*
2. *You will not be allowed to write during the first 5 minutes. This time is to bespent in reading the question paper.*
3. *The time given at the head of this Paper is the time allowed for writing the answers.*
4. *Attempt all questions from Section A, any 4 questions from section B.*
5. *The intended marks for questions or parts of questions are given in bracket [ ] .*

Section A
(Attempt all questions from this Section)

Question 1

Choose the correct answer and write the correct option.   [6x1]

 a. Which of the following is not a Java primitive type
   A) byte **B)** float **C)** character **D)** long

b. Which of the following is not mandatory in a variable declaration?
   A) a semicolon **B)** an identifier **C)** an assignment **D)** a data type

c. Continue statement can be used
   A) anywhere inside the main method **B)** anywhere inside the class
   C) within instance methods **D)** only within looping statements

d. What is byte code in Java?
   A) Code generated by a Java compiler **B)** Code generated by a Java Virtual Machine
   C) Name of Java source code file **D)** Block of code written inside a class

e. Which variables are created when an object is created with the use of the keyword 'new' and destroyed when the object is destroyed?
   A) Local variables **B)** Instance variables **C)** Class Variables **D)** Static variables

f. Return data type of isLetter(char) is _____
   A) Boolean **B)** boolean **C)** bool **D)** char

Question 2

Fill in the blanks with the correct option   [4x1]

a. When the operators have the same priority, they are evaluated from............................. in the order they appear in the expression.
        A) right to left **B)** left to right **C)** any of the order **D)** depends on the compiler

b. In Java, …………. can only test for equality, whereas............ can evaluate any type of Boolean expression.
         A) switch, if **B)** if, switch **C)** if, break **D)** continue, if

c. By using .... you can force an immediate termination of a loop, bypassing the conditional expression and any remaining code in the body of the loop.
        A) break **B)** continue **C)** terminate **D)** end

d. Method overloading is one of the ways that Java supports …………
        A) encapsulation **B)** class **C)** inheritance **D)** polymorphism

Question 3

Give the output of the following   [5×1]

a. int a=5,x=50;
        while(a<x)
        {
                x=x/a;
        }
System.out.println(x);
A) 5 **B)** 2 **C)** 1

b. char c='a'; switch (c) { case 'a'; System.out.print("A"); case 'b'; System.out.print("B"); default; System.out.print("C"); }

A) A **B)** AB **C)** ABC

c. x*=5 + --q * q++ + 10; if x=5 and q=2 before evaluation.
A) 36 **B)** 80 **C)** 85

d. char grade=(mark>=90)? 'A': (mark>=80)? 'B' : 'C'; if mark=80.
A) A **B)** B **C)** C

e. int ctr=1;
for (int i=1 ; i<=5 ; i++)
for(int j=1 ; j<=5 ; j+=2)
        ++ctr;
A) 15 **B)** 16 **C)** 17

Question 4

[5×1.5]

The following program code checks if the positive integer 'N' is a palindrome number by returning true or false. There are some places in the code marked as ?1?, ?2?, ?3?, ?4? and ?5? which are to be replaced by a statement/expression so that the code works properly.

```
boolean Palindrome(int N)
{
int rev = ?1? ;
int num = N;
while (num>0)
{
int f = ?2?;
rev = ?3? + f;
num /= ?4?;
}
if(rev == ?5?)
return true;
else
return false;
}
```

Answer the following questions:
a. What is the statement or expression at ?1?
    (A) -1 **(B)** 0 **(C)** 10 **(D)** 2
b. What is the statement or expression at ?2?
    (A) N *10 **(B)** num/10 **(C)** num%10 **(D)** N%10
c. What is the statement or expression at ?3?
    (A) num * 10 **(B)** rev * 10 **(C)** N * 10 **(D)** rev
d. What is the statement or expression at ?4?
    (A) 10 **(B)** 100 **(C)** 2 **(D)** f
e. What is the statement or expression at? 5?
    (A) 1 **(B)** num **(C)** N **(D)** 10

Question 5

[5×1.5]

The following function computes the quotient and remainder of a division. There are some places in the code marked as ?1?, ?2?, ?3?, ?4? and ?5? which are to be replaced by a statement/expression so that the code works properly.

```
public void quotientrem()
{
int dividend=13,divisor=2,quo=?1?;
int rem;
while(dividend>=?2?)
{
dividend - = ?3?;
quo=?4?;
}
rem=?5?;
```

}
Answer the following questions:

a. What is the statement or expression at ?1?

      (A) 1 **(B)** 0 **(C)** divisor **(D)** dividend

b. What is the statement or expression at ?2?

      (A) 0 **(B)** divisor **(C)** rem **(D)** quo

c. What is the statement or expression at ?3?

      (A) 0 **(B)** divisor **(C)** 10 **(D)** quo

d. What is the statement or expression at ?4?

      (A) quo+1 **(B)** divisor **(C)** dividend **(D)** quo*10

e. What is the statement or expression at ?5?

      (A) 1 **(B)** quo **(C)** divisor **(D)** dividend

Question 6   [5x2]

a. Give the output of the following code:

```
System.out.println("Good".concat("Day"));
```

b. Give the output of the following String methods:

```
"SUCCESS".indexOf('S')+" SUCCESS".lastIndexOf('S')
```

c. Give the output of the following code:

```
String A="56.0",B="94.0";
double c= Double.parseDouble(A);
double D= Double.parseDouble(B);
System.out.println((C+D))
```

d. Give the output of the following code:

```
System.out.println("Lucknow".substring(0,4));
```

e. The access modifier that gives least accessibility is:

        (A) private **(B)** public **(C)** protected **(D)** package

Section B

(Attempt **any four** questions from this Section)

The answers in this section should consists of the programs in either BlueJ environment
or any program environment with java as the base.
Each program should be written using variable description/ mnemonic codes so that
the logic of program is clearly depicted.
Flowcharts and algorithms are not required.

Question 7

[15]

A library issues books on a rental basis at a 2% charge on the cost price of the book per day. As per the rules of the library, a book can be retained for 7 days without any fine. If the book is returned after 7 days, a fine will be charged for the excess days as per the chart given below:
Number of excess days Fine per day
1 to 5   2.00
6 to 10   3.00
Above 10 days 5.00

Design a class Library to perform the task. The details of the class is given below:
Class name : Library
Data members
name : name of the book
author : author of the book
p : price of the book in decimals
d : number of days taken in returning the book.
f : to store the fine.
Member functions
Library(…) : parameterized constructor to assign values to data members.
void fine() : calculate the fine for excess days.
void display() : displays the book details along with the number of days, fine and total amount to be paid.
Total amount is calculated as:
(2% of price of book * total no. of days) + fine
Write the main function to create an object and call the methods.

Question 8   [15]

Write a program to enter 10 integers each in two different arrays. Find and print if they are mirror images of each other or not. A variable description table is to be written.
Eg. a[]={1,2,3,4,5,6,7,8,9,10} and b[]={10,9,8,7,6,5,4,3,2,1} are mirror images.

Question 9   [15]

Input a sentence and a word. Print the output after excluding that word from the sentence (if found).
A variable description table is to be written.
Sample Input: Rahul has worked very hard. His performance is very good.
Keyword: very

Sample Output: Rahul has worked hard. His performance is good.

Question 10

[15]

Design a class to overload a function volume( ) as follows:
void volume(int s) – To calculate and print the volume of a cube (side3).
void volume(int l,int b,int h) – To calculate and print the volume of a cuboid (length x breadth x height).
void volume(double r) – To calculate and print the volume of a sphere ($4/3\pi r^3$).

Question 11   [15]

Define a class to accept two strings of same length and form a new word in such a way that the first character of the first word is followed by the first character of the second word and so on.

Example: Input String 1 - BALL
         Input String 2- WORD
OUTPUT: BWAOLRLD

Question 12   [15]

Define a class to declare an array to accept and store ten words. Display only those words which begin with the letter 'A' or 'a' and also end with letter 'A' or 'a'.

EXAMPLE:

Input: Hari, Anita, Amrita, Asmita, Alina, Devi, John, Rishav, AMITHA, Farha

Output: Anita
        Amrita
        Asmita
        Alina
        AMITHA