**Session 1:**

**Data types, variables and operators**

**Exercise 1:** Write a program in Java to implement the formula (Area = Height ×

Width) to find the area of a rectangle. Where Height and Width are the rectangle’s

height and width.

**Exercise 2:** Write a program in Java to find the result of following expression

(Assume a = 10, b = 5)

i) (a < < 2) + (b > > 2)

ii) (a) | | (b > 0)

iii) (a + b ∗100) / 10

iv) a & b

**Exercise 3:** Write a program in Java to explain the use of break and continue

statements.

**Exercise 4:** Write a program in Java to find the average of marks you obtained in

your 10+2 class.

**Session 2:**

**Statements and array**

**Exercise1:** Write a program in Java to find A×B where A is a matrix of 3×3 and B is

a matrix of 3×4. Take the values in matrixes A and B from the user.

**Exercise 2:** Write a program in Java to compute the sum of the digits of a given

integer. Remember, your integer should not be less than the five digits. (e.g., if input

is 23451 then sum of the digits of 23451will be 15)

**Exercise 3:** Print the number as given below

**Input 🡪 Enter Number:20**

**Output 🡪**

**1 3 5 2 4 6 7 9 11 8 10 12 13 15 17 14 16 18 19**

**Session 3:**

**Class and Objects**

**Exercise 1:** Write a program in Java with class Rectangle with the data fields width,

length, area and colour. The length, width and area are of double type and colour is of

string type .The methods are set\_ length () , set\_width (), set\_ colour(), and find\_ area

(). Create two object of Rectangle and compare their area and colour. If area and

color both are the same for the objects then display “Matching Rectangles”,

otherwise display “Non matching Rectangle”.

**Exercise 2:** Create a class Account with two overloaded constructors. The first

constructor is used for initializing, the name of account holder, the account number

and the initial amount in the account. The second constructor is used for initializing

the name of the account holder, the account number, the addresses, the type of

account and the current balance. The Account class is having methods Deposit (),

Withdraw (), and Get\_Balance(). Make the necessary assumption for data members

and return types of the methods. Create objects of Account class and use them.

**Exercise 3:** Write a program in Java to create a stack class of variable size with

push() and pop () methods. Create two objects of stack with 10 data items in both.

Compare the top elements of both stack and print the comparison result.

**Exercise 4:**

Write a program to validate all the fields in that class. All validation method should be static method in Utility class.

A) Employee id should be 5 digit followed by (\_FS/\_TS)

**Employee**

empId

firstName

lastName

salary

dob

doj

B)FirstNAme should be alphabet

C) DOB and DOJ format should be DD-MON-YYYY

D)Salary between 2000 and 50000

**Session 4:**

**Inheritance and polymorphism**

**Exercise 1:** Write a Java program to show that private member of a super class

cannot be accessed from derived classes.

**Exercise 2:** Write a program in Java to create a Player class. Inherit the classes

Cricket \_Player, Football \_Player and Hockey\_ Player from Player class.

**Exercise 3:** Write a class Worker and derive classes DailyWorker and

SalariedWorker from it. Every worker has a name and a salary rate. Write method

ComPay (int hours) to compute the week pay of every worker. A Daily Worker is

paid on the basis of the number of days s/he works. The Salaried Worker gets paid

the wage for 40 hours a week no matter what the actual hours are. Test this program

to calculate the pay of workers. You are expected to use the concept of polymorphism

to write this program.

**Exercise 4:** Consider the trunk calls of a telephone exchange. A trunk call can be

ordinary, urgent or lightning. The charges depend on the duration and the type of the

call. Writ a program using the concept of polymorphism in Java to calculate the

charges.