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Bansilal Ramnath Agarwal Charitable Trust's
VISHWAKARMA INSTITUTE OF TECHNOLOGY, PUNE – 411037.
(An Autonomous Institute Affiliated to Savitribai Phule Pune University)

Examination: ESE

Year: SY   **Branch:** Dept. of Multidisciplinary Engg

Subject: Object Oriented Programming   **Subject Code:** CS2218

Max. Marks: 60   **Total Pages of Question Paper:** 4

Day & Date: Tuesday, 20-Dec-2022   **Time:** 8:30am TO 10:30am

Instructions to Candidate
1. All questions are compulsory.
2. Neat diagrams must be drawn wherever necessary.
3. Figures to the right indicate full marks.

Q. N.	CO No	BT No		Max marks

Q.1	CO 1	BT No. 1,4	**A.**
			 1. If local variable is having same name as instance variable, to differentiate them has use _____ keyword.
			 a) this b) this() c) super d) final
			
			 2. What is the correct way to create an object called myObj of MyClass?
			 a) new myObj=MyClass() : b) class MyClass = new myObj();
			 c) MyClass myObj = new MyClass(); d) class myObj = new MyClass();
			
			 3. If we don't define a constructor for a class, a _____ constructor is automatically provided.
			 a) default b) b) static c) parameterized d) final
				3 marks

Q.1	CO 1	BT No. 6	**B.** Create a new class Restaurant with the instance variables and methods mentioned below. • restaurantName: String • restaurantContact: long • restaurantAddress: String • rating: float • displayRestaurantDetails(): void **Method Description:- displayRestaurantDetails()** • Display the details of the restaurant (the values of the member variables) Create an object of the Restaurant class, initialize the instance variables, and invoke the displayRestaurantDetails() method in the main() method of the Tester class. **Sample Output :** Restaurant Details ***************** Restaurant Name : McDonald's Restaurant Rating 4.1 Restaurant Contact 9985676747 Restaurant Address 5#1100, Carolina street, Springfield	3 marks
Q.1	CO 1	BT No. 6	**C.** Create a new class Order with the instance variables and methods mentioned below. • Order() • Order(int orderId, String orderedFoods) **Method Description: Order()** • Set the value of status to 'Ordered'. **Order(int orderId, String orderedFoods)**	4 marks

- Initialize the instance variables appropriately with the values passed to the constructor. And Set the value of status to 'Ordered'.

Create an object of the Order class by using the parameterless constructor and display the value of the status instance variable in the main() method of the Tester class. Create one more object of the Order class by using the parameterized constructor and display the value of orderId, orderFoods and status instance variables in the main() method of the Tester class.

Sample Output:

Status of order 1: Ordered
Status of order 2: Ordered
Id of order 2: 1001
Items ordered in order 2: Garlic Shrimp

3 marks

Q.2 CO 2 BT No. 1,4

A.

1. Which of these classes is used to read from byte array?
   a) InputStream
   b) BufferedInputStream
   c) ArrayInputStream
   d) ByteArrayInputStream

2. How many of the following are legal declarations?

   i) String lion[] =new String[] {"lion"};   ii) String tiger[] =new String[1] {"tiger"};

   iii) String bear[] =new String[]{};   iv) String cat[] =new String[0]{};

   a) None   b) one   c) Two   d) Three

3. What is the result of following code:

```
public class Test{

public static void main(String[] args){

int[] a = new int[0];

System.out.print(a.length); } }
```

   a) 0   b) None of the above
   c) Compilation error. arrays cannot be initialized to zero size.
   d) Compilation error. it is a length() not a.length

OR

A. Answer the following Questions
   1. What are the types of I/O streams?
   2. What are the main ancestors of I/O streams?
   3. What is the difference between BufferedReader and FileReader in Java?

Q.2 CO 2 BT No. 3

B. Write a Java program to create an array of its anti-diagonals from a given square matrix.

Sample Example:
Input: 1 2
       3 4

Output:
[
[1],
[2,3],
[4]
]

4 marks

Q.2 CO 2 BT No. 3

C. Write a Java program to get the difference between the largest and smallest values in an array of integers. The length of the array must be 1 and above.

3 marks

Q.3 CO 3 BT No. 1,4

A.

1. Which of the given modifier can be used to prevent method overriding?
   a) Static   b) extends   c) super   d) final

2. What is the output of following program?

```
public class Tester {
public static void main(String[] args){
   StringBuffer s =new StringBuffer("Hello");
   s.setCharAt(1,'x');
   System.out.println(s);
}}
```

   a) xello
   b) Xxxx
   c) Hxllo
   d) Hello

3 marks

3. In order to restrict a variable of a class from inheriting to a subclass, how variable should be declared.

a) protected   b) private   c) public   d) static

| Q.3 | CO 3 | BT No. 6 | B. Create a program for following problem statement(Method Overloading) | 4 marks |

Brand name	Item ID	Item Name	Size	Price
Puma	1001	T-shirt	34	$25
			36	
	1002	skirt	38	$20

Implement a class Bill. Method Description given below

findPrice(int itemId)

   i) Find and return the price based on the itemId using the table given above.

   ii) If the itemId passed to method is invalid, return the price as 0.

findPrice(String brandName, String itemType, int size)

   iii) Find and return the price based on the brandName, itemType and size using the table given above.

   iv) If any invalid details are passed to the method, return the price as 0.

| Q.3 | CO 3 | BT No. 5 | C. Explain what the use of Final is and Super keyword. Demonstrate your answer with example. | 3 marks |

OR

C. What is the difference between Method overloading and Method overriding. Justify with example.

| Q.4 | CO 4 | BT No. 1,4 | A. | 3 marks |

1. Which of these keywords, is used by the calling function to guard against the exception thrown by called function?

   a) try   b) throw   c) throws   d) catch

2. Which of the following is/are true for classes and interfaces?

   a) "Account extends SavingsAccount" is correct if and only if "Account is a class" and "SavingsAccount is an interface"

   b) "Account extends SavingsAccount" is correct if and only if "Account is an interface" and "SavingsAccount is a class".

   c) "Account extends SavingsAccount" is correct if "Account and SavingsAccount both are either interfaces or classes".

   d) "SavingsAccount implements Account" is correct if and only if "Account is an interface" and "SavingsAccount is a class".

3. In Java .declaring a class abstract is useful _____

   a) To create subclass of the class

   b) When it doesn't make sense to have objects of that class.

   c) When default implementation of some methods are not desirable.

   d) To force developer to extend the class not to use its capabilities.

| Q.4 | CO 4 | BT No. 2,4 | B. What are the differences between abstract class and interface with example? | 3 marks |

OR

B. What is an Exception? Write the use of i) Try-Catch   ii) throw and throws

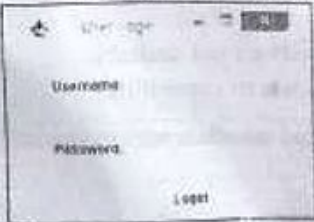| Q.4 | CO 4 | BT No. 6 | C. A Company manufactures Vehicles, which could be a Helicopter, a Car, or a Train depending on the customer's demand. Each Vehicle instance has a method called move, which prints on the console the nature of movement of the vehicle. **For example, the Helicopter Flies in Air, the Car Drives on Road and the Train Runs on Track.** Write a program that accepts input from the user on the kind of vehicle the user wants to order, and the system should print out nature of movement. Implement all Java coding best practices to implement this program. Use the concept of abstract class. | 4 marks |

| Q.5 | CO 5 | BT No. 1,4 | A. | 3 marks |

1. Which of these packages contain all the collection classes?

a) java.lang   b) java.util   c) java.net   d) java.awt

2. Which of these, interface is not a part of java's Collection framework?

a) List   b) Set   c) SortedMap   d) SortedList

3. Number of threads created in below program:

```
public class ThreadExtended extends Thread {
public void run() {
System.out.println(" n Thread is running  n")
}
```
```
public static void main(String[] args) {
ThreadExtended threadE = new ThreadExtended();
threadE.Start(); }
```

b) 0   b) 1   c) 2   d) 3

Q.5	CO 5	BT No. 4	B. Differentiate between the Thread class and Runnable interface for creating a Thread? **OR** B. What is the states in the lifecycle of a Thread? Explain with state diagram.	3 marks
Q.5	CO 5	BT No. 6	C. Create an ArrayList using collection framework and perform following operations: i) Remove the third element ii) Display the second element iii) Replace the fourth element iv) Add [blue, grey, purple] in created arrayList **Sample Input:** [red, green, orange, white, black]	4 marks
Q.6	CO 6	BT No. 1	A. Fill in the Blanks 1. _____ method is used to read in from file a) get() b) read() c) scan() d) readFileInput() 2. When EOF(End Of File) encountered . ____ value returned by read() a) 0 b) 1 c) -1 d) Null 3. Swing provides _____ and _____ components. a) platform-independent b) platform-dependent c) lightweight d) heavyweight 4. The listener _____ used to handle the events of a text field. a) java.awt.ActionListener interface b) java.awt.event.Actionlistener interface c) awt.event.Actionlistener interface d) java.awt.event.ActionListener interface	4 marks
Q.6	CO 6	BT No. 2	B. Write about file handling in java and Explain following methods of file handling- 1. canRead() 2. getName() 3. exists()	3 marks
Q.6	CO 6	BT No. 6	C. Implement a Java Swing code for following output: - 1. Create frame and set required parameter of the frame as shown in output. 2. Add two labels, Text Field, Password Field and Button as shown.	3 marks

CO Statements: Students are able to do

CO1: Understand object-oriented programming features.

CO2: Design and develop real world applications using Java IO and Arrays.

CO3: Design and develop class, inheritance and polymorphism.

CO4: Solve computing problems by applying the knowledge of Exception handling and Multithreading.

CO5: Design solutions by choosing suitable data structures such as List, Vector, Map etc .

CO6: Implement applications using file handling and event-based GUI handling principles.

*Blooms Taxonomy (BT) Level No:

1. Remembering; 2. Understanding; 3. Applying; 4. Analyzing; 5. Evaluating; 6. Creating