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| **VIDYAVARDHAKA COLLEGE OF ENGINEERING**  **Autonomous Institute, Affiliated to Visvesvaraya Technological University, Belagavi**  **Gokulam, 3rd Stage, Mysuru 570 002** | | | | |
| **Third Semester B.E. Examinations** | | | | |
| **COURSE NAME:**  **OBJECT ORIENTED PROGRAMMING** | | | | |
| **Duration: 3 hours Max. Marks: 100** | | | | |
| **INSTRUCTION TO STUDENTS**  **1) Answer One Full question from each module.**  **2) Three module questions are compulsory and remaining two modules will have internal choice.**  **3) Each module carries 20 marks.** | | | | |
| **Q. No.** | **Module-I** | **Marks** | **BL** | **CO** |
| **1. (a)** | **Explain the working of any two types of operators in Java.** | **8** | **L2** | **CO1** |
| **1. (b)** | **Compare and contrast different types of constructors in Java.** | **8** | **L2** | **CO1** |
| **1. (c)** | **Summarize the working of Garbage Collector.** | **4** | **L2** | **CO1** |
| **Module-II** | | | | |
| **2.(a)** | **Develop a Java program to find square and cube of a number using multithreading.** | **10** | **L3** | **CO2** |
| **2.(b)** | **Analyze the below code and complete the program to find the area of square, triangle and rectangle using method overriding.**  **class Figure{**  **double dim1;**  **double dim2;**  **void area()**  **{**  **……………………**  **}**  **}** | **10** | **L4** | **CO3** |
| **Module-III** | | | | |
| **3.(a)** | **Develop a program to solve read-write problem using multithreading.** | **10** | **L3** | **CO2** |
| **3.(b)** | **Analyze the below code and complete the program to find the sum and average of “ even and odd elements between 20 and 30” by using a for-each loop to the collection.**  **…………**  **public static void main(String args[])**  **{**  **ArrayList<integer> al = new ArrayList<integer>();**  **……………..**  **}** | **10** | **L4** | **CO3** |
| **(OR)** | | | | |
| **4.(a)** | **Develop a program to store the name and address fields of a person using user defined collections.** | **10** | **L3** | **CO2** |
| **4.(b)** | **Analyze the below code and complete the program to add 5 elements and print all the elements of the collection.**  **…………**  **public static void main(String args[])**  **{**  **HashSet<String> al = new HashSet<String>();**  **……………..**  **}** | **5** | **L4** | **CO3** |
| **4.(c)** | **For the given code complete the program and display all the elements of the collection.**  **…………**  **public static void main(String args[])**  **{**  **TreeSet<String> al = new TreeSet<String>();**  **……………..**  **}** | **5** | **L4** | **CO3** |
| **Module-IV** | | | | |
| **5.(a)** | **For a below given JSP structure, Develop the code to set refresh header to simulate a digital clock, also list the methods of HTTPServletResponse object.**  **<!doctype ...>**  **<html>**  **<head>...</head>**  **<body>**  **...**  **</body>**  **</html>** | **10** | **L3** | **CO2** |
| **5.(b)** | **Design and develop a java program to read the http header information.** | **10** | **L5** | **CO4** |
| **(OR)** | | | | |
| **6.(a)** | **Develop a program to find out the creation time and last accessed time for a session, also associate a new session with the request if one does not already exist.** | **10** | **L3** | **CO2** |
| **6.(b)** | **Design and develop a JSP program which uses getHeaderNames() method of HttpServletRequest to read the HTTP header information and also explain JSP life cycle.** | **10** | **L5** | **CO4** |
| **Module- V** | | | | |
| **7.(a)** | **Consider the parameters of callable statement object, IN, OUT and INOUT write a suitable code to call a stored procedure and retrieve a value returned by the stored procedure.** | **10** | **L3** | **CO2** |
| **7.(b)** | **Design and develop a Java program that uses scrollable virtual cursor to show the working of the result set object methods.** | **10** | **L5** | **CO4** |