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| **DIT UNIVERSITY , DEHRADUN**   |  |  | | --- | --- | | **MCA** | **: END TERM EXAMINATION, EVEN SEM 2022-23 (SEM II)** | | | | | | | | | | | | | |
| **Roll No.** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Subject Name: Advanced Java Programming** | | | | | | | | | | | | |

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| **Time: 3 Hours** | **Total Marks: 100** |
| **Note: All questions are compulsory. No student is allowed to leave the examination hall before the completion of the exam.**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Q.1)** | **Attempt all Parts :** | | **BTL** | **CO** | |  | (a) | Give reasons for following statements:  A) Abstract class has constructor even though you cannot create object?  B) We create reference to superclass (abstract class reference)? | L1 | CO1 | |  | (b) | [What is Deadlock? How to analyze and avoid deadlock situation?](https://www.digitalocean.com/community/tutorials/java-multithreading-concurrency-interview-questions-answers" \l "what-is-deadlock-how-to-analyze-and-avoid-deadlock-situation) | L1 | CO3 | |  | (c) | Elaborate the hierarchy of the Collection framework in Java. | L6 | CO2 | |  | (d) | Describe the following:  I) Executors Framework.  Ii) Lifecycle of Thread | L4 | CO3 | |  |  | **[4 x 5= 20]** |  |  | |  | | |  |  | | **Q.2)** | **Attempt all Parts :** | | **BTL** | **CO** | |  | (a) | Write a program to implement life cycle of a servlet. | L5 | CO5 | |  | (b) | Explain the JDBC Architecture? | L2 | CO4 | |  | (c) | What is synchronized method and synchronized block? Which one should be preferred, Why? | L1 | CO3 | |  | (d) | Differentiate between J2EE and J2ME. | L4 | CO5 | |  |  | **[4 x 5= 20]** |  |  | |  | | |  |  | | **Q.3)** | **Attempt any two parts :** | | **BTL** | **CO** | |  | (a) | **A. Write the output of the following code:**  public class Test {  public static voidmain(String[] args) {  Map map = new LinkedHashMap();  map.put("123", "John Smith");  map.put("111", "George Smith");  map.put("123", "Steve Yao");  map.put("222", "Steve Yao");  System.out.println("(1) " + map);  System.out.println("(2) " + new TreeMap(map));  }  }  **B. The following code has compilation errors, runtime error, or other problems, or no problems?**  public class A {  public static void main(String args[]) {  int[] a = new int[10];  int[] c = new int[20];  a = c;  }  } | L5 | CO2 | |  | (b) | Explain how a server and a client communicate to each other using streams on top of server and client sockets. Explain with the help of small block of codes and appropriate classes. | L2 | CO4 | |  | (c) | Illustrate Threadpool and ExecutorService in Java concurrency. | L2 | CO3 | |  |  | **[2 x 10= 20]** |  |  | |  | | |  |  | | **Q.4)** | **Attempt any two parts :** | | **BTL** | **CO** | |  | (a) | What are the different types of drivers in JDBC? What are the components of JDBC? | L1 | CO4 | |  | (b) | [Define BlockingQueue? How can we implement Producer-Consumer problem using Blocking Queue?](https://www.digitalocean.com/community/tutorials/java-multithreading-concurrency-interview-questions-answers" \l "what-is-blockingqueue-how-can-we-implement-producer-consumer-problem-using-blocking-queue) | L1 | CO3 | |  | (c) | For the user actions mentioned below, mention what kind of Jcomponents are used, and what kinds of events are generated.   1. Click a button 2. Click a checkbox 3. Click a radio button 4. Press return on a text field 5. Mouse pressed, released, etc. | L6 | CO2 | |  |  | **[2 x 10= 20]** |  |  | |  | | |  |  | | **Q.5)** | **Attempt any two parts :** | | **BTL** | **CO** | |  | (a) | Explain how communication takes place between a server and client using a Datagram socket. Explain with the help of small block of codes and appropriate classes. | L5 | CO4 | |  | (b) | Write a detailed note on Checked Exceptions and Unchecked Exceptions in Java. | L6 | CO1 | |  | (c) | Differentiate between the following:  i)Generic Servlet Vs Http Servlet  ii)Get Vs Post method  iii)forward() method Vs sendRedirect() method | L3 | CO5 | |  |  | **[2 x 10= 20]** |  |  | | -----END OF PAPER ---- | | |  |  | | |