**ABES Engineering College, Ghaziabad**

# B. Tech Even Semester Sessional Test-3

**Printed Pages: 1**

**Session: 2023-24**

**Semester: 4th**

**Course Code: BCS 403 Roll No.:**

**Course Name: Object Oriented Programming with Java Time: 1 Hr 30 Mins**

**Maximum Marks: 40**

**Instructions:**

1. **Attempt all sections.**
2. **If require any missing data, then choose suitably.**

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| **Q. No.** | **Question** | **Marks** | **CO** | **KL** | **PI** |
| **Section-A Total Marks : 20** | | | | | |
| **1** | **Attempt ANY ONE part from the following** |  | | | |
| **a)** | Explain why we use Collections instead of Arrays. | **5** | **CO4** | K2 | 1.4.1 |
| **b)** | Explain the sorting algorithms used in Java Collections Framework. | **5** | **CO4** | K2 | 1.4.1 |
| **2** | **Attempt ANY ONE part from the following** |  | | | |
| **a)** | Explain Iterator Interface and its methods with example. | **5** | **CO4** | K2 | 1.4.1 |
| **b)** | Differentiate between List and Set. | **5** | **CO4** | K2 | 1.4.1 |
| **3** | **Attempt ANY ONE part from the following** |  | | | |
| **a)** | Write a program to create an ArrayList of 5 numbers and print the elements in sorted order using sort method. | **10** | **CO4** | K3 | 2.1.2 |
| **b)** | Write a program in Java to implement push, pop, peek, empty and search methods of Stack class. | **2+2+2+2+2** | **CO4** | K3 | 2.1.2 |
| **Section-B Total Marks : 20** | | | | | |
| **4** | **Attempt ANY ONE part from the following** |  | | | |
| **a)** | Explain the concept of Bean scope and its type. **[Company Specific]** | **5** | **CO5** | K2 | 1.4.1 |
| **b)** | Explain REST API with a suitable example**. [Company Specific]** | **5** | **CO5** | K2 | 1.4.1 |
| **5** | **Attempt ANY ONE part from the following** |  | | | |
| **a)** | Explain Spring Boot Architecture with a suitable diagram. | **5** | **CO5** | K2 | 1.4.1 |
| **b)** | Explain about Life Cycle Call backs with a neat diagram. | **5** | **CO5** | K2 | 1.4.1 |
| **6** | **Attempt ANY ONE part from the following** |  | | | |
| **a)** | Explain Dependency Injection (DI) and its types. Write all the steps and syntax to implement DI using setter method | **5+5** | **CO5** | K2 | 2.1.2 |
| **b)** | Explain Spring Boot and its advantages. Write all the steps to create a spring boot application. | **5+5** | **CO5** | K2 | 2.1.2 |

CO Course Outcomes mapped with respective question

KL Bloom's knowledge Level (K1, K2, K3, K4, K5, K6)

K1-Remember, K2-Understand, K3-Apply, K4-Analyze, K5- Evaluate, K6-Create