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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech (Integrated)

SEM: VI - THEORY EXAMINATION- (2024- 2025)

Subject: Advanced Java Programming

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C**. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

20

1. Attempt all parts:-

- 1-a. Select the true statement about javax.servlet.error.message. (CO1,K1) 1
- (a) This attribute gives exact error message which can be stored and analysed after storing in a java.lang.String data type.
 - (b) This attribute gives information about exception type which can be stored and analysed after storing in a java.lang.Class data type.
 - (c) This attribute gives status code which can be stored and analysed after storing in a java.lang.Integer data type.
 - (d) This attribute gives information about URL calling the servlet and it can be stored and analysed after storing in a java.lang.String data type.
- 1-b. Select the correct option to rollback a JDBC transaction(CO 1,K 1) 1
- (a) rollback()
 - (b) rollforward()
 - (c) deleteTransaction()
 - (d) RemoveTransaction()
- 1-c. Choose one Implicit Object which is used to get information about the servlet configuration? (CO2,K1) 1
- (a) page
 - (b) config
 - (c) application

- (d) out
- 1-d. Phases are in the life cycle of a JSP page (CO2,K1) 1
- (a) 2
 - (b) 3
 - (c) 4
 - (d) 5
- 1-e. Discuss the steps to handle shut down of IoC container? (CO3,K2) 1
- (a) Using shutdownHook()
 - (b) Using shutdownHandler()
 - (c) Using registerHook()
 - (d) Using registerShutdownHook()
- 1-f. The constructor mode of autowiring is------(CO3 ,K1) 1
- (a) Autowiring by property name. Spring tries to match and wire its properties with the beans defined by the same names in the configuration file.
 - (b) Spring first tries to wire using autowire by constructor, if it does not work, Spring tries to autowire by byType.
 - (c) Autowiring by property type. Spring tries to match and wire a property if its type matches with exactly one of the beans name in configuration file.
 - (d) Similar to byType, but type applies to constructor arguments. If there is not exactly one bean of the constructor argument type in the container, a fatal error is raised.
- 1-g. Annotation @PathVariable is used to _____.(CO4 ,K1) 1
- (a) Map an entity
 - (b) Map a path URI
 - (c) Map an input param
 - (d) none of the above
- 1-h. The HTTP method to update a particular resource in Spring MVC is -----(CO 4,K1) 1
- (a) PUT
 - (b) POST
 - (c) GET
 - (d) DELETE
- 1-i. An alternative to Spring's HibernateTemplate is(CO5 ,K1) 1
- (a) HibernateContext
 - (b) Hibernate's contextual sessions
 - (c) Hibernate Sessionin
 - (d) None of the Above
- 1-j. Choose those which is not belongs to the JPA @Entity association attributes.(CO5 ,K1) 1
- (a) Association validation

- (b) Association multiplicity
- (c) Association cascade behaviorwrong
- (d) Association direction

2. Attempt all parts:-

- | | | |
|------|---|---|
| 2.a. | Discuss the difference between Cookies and HttpSession.(CO1 ,K 1) | 2 |
| 2.b. | Interpret the concepts of initialization phase in the JSP life cycle.(CO2 ,K 2) | 2 |
| 2.c. | Discuss the different features of Spring Framework.(CO3 ,K 2) | 2 |
| 2.d. | Discuss about validations in Spring MVC.(CO4 ,K 2) | 2 |
| 2.e. | Dsicuss about the constraints on an entity class? (CO5,K2) | 2 |

SECTION-B

30

3. Answer any five of the following:-

- | | | |
|------|---|---|
| 3-a. | Describe all the life-cycle methods for a servlet.(CO1,K2) | 6 |
| 3-b. | Explain ResultSet interface.(CO1 ,K 2) | 6 |
| 3-c. | Compare and contrast JSP scriptlet, expression, and directive tags, and discuss the advantages and disadvantages of using each.(CO2 ,K 4) | 6 |
| 3-d. | Compare and contrast JSP and Servlets, and discuss the advantages and disadvantages of using each.(CO2 ,K4) | 6 |
| 3.e. | Discuss Spring Java-Based Configuration with some annotation example.(CO3 ,K2) | 6 |
| 3.f. | Design and show errorpage.jsp layout.(CO4 ,K 4) | 6 |
| 3.g. | Explain JPA Architecture or Explain the core classes and interfaces of JPA API. (CO5,K2) | 6 |

SECTION-C

50

4. Answer any one of the following:-

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|------|---|----|
| 4-a. | Discuss the limitations of PreparedStatement and how to overcome it.(CO1 ,K2) | 10 |
| 4-b. | Describe the procedure of connecting MySQL or Oracle with Java. Describe each and every step using Program.(CO1 ,K 2) | 10 |

5. Answer any one of the following:-

- | | | |
|------|---|----|
| 5-a. | Discuss the various implicit objects available in JSP, including the request, response, pageContext, session, and application objects, and explain the purpose and key features of each object.(CO2 ,K 2) | 10 |
| 5-b. | Elucidate the purpose and key features of the JSP Precompilation feature, and discuss how it can be used to improve the performance of JSP applications.(CO2 ,K2) | 10 |

6. Answer any one of the following:-

- | | | |
|------|--|----|
| 6-a. | Describe the steps of the Bean lifecycle with suitable diagram.(CO3 ,K 2) | 10 |
| 6-b. | Illustrate some of the important Spring annotations you have used?(CO3 ,K2) | 10 |

7. Answer any one of the following:-

- 7-a. Explain about Spring Boot CRUD Operations and show with example the read operation.(CO4 ,K2) 10
- 7-b. Create a employee database with fields empname,empid, salary, empdept. In MYSQL and write its connection file i.e. SpringBootJdbcApplication.java and SpringBootJdbcController.java.(CO4 ,K 3) 10
8. Answer any one of the following:-
- 8-a. Discuss the various query methods in JPA to retrieve data from the database. List some of the most used methods.(CO5,K2) 10
- 8-b. Discuss the process of persisting JPA entities into a database using the EntityManager in JPA.(CO5 ,K2) 10

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