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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM:VI- CARRY OVER THEORY EXAMINATION-AUGUST 2023

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

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1. Attempt all parts:-

- 1-a. How many transaction isolation levels used with the JDBC through the Connection interface? (CO1) 1
- (a) 3
 - (b) 4
 - (c) 7
 - (d) 2
- 1-b. Which of the following is true about servlets? (CO1) 1
- (a) Servlets execute within the address space of web server
 - (b) Servlets are platform-independent because they are written in java
 - (c) Servlets can use the full functionality of the Java class libraries
 - (d) Servlets execute within the address space of web server, platform independent and uses the functionality of java class libraries
- 1-c. The purpose of JSP declaration tag is (CO2) 1
- (a) To declare variables and methods in JSP

- (b) To output data to the web page in JSP
(c) To write Java code in JSP
(d) To include external files in JSP
- 1-d. What happens during the compilation phase of a JSP page's life cycle? (CO2) 1
(a) The Java servlet is loaded into memory
(b) The Java code is compiled into bytecode
(c) The bytecode is executed on the server
(d) The HTML code is generated for the web page
- 1-e. Which Spring annotation is used to handle HTTP PUT requests? (CO3) 1
(a) @GetMapping
(b) @PutMapping
(c) @DeleteMapping
(d) @PostMapping
- 1-f. Select proper definition of Spring MVC framework. (CO3) 1
(a) Spring MVC framework is Model-Value-Class architecture and used to bind model data with values.
(b) The Spring web MVC framework provides model-view-controller architecture and ready components that can be used to develop flexible and loosely coupled web applications.
(c) Spring MVC framework is used for Transaction management for Web Applications.
(d) Spring MVC framework is used for AOP for Web Applications.
- 1-g. Which of the following folder in spring mvc project contains web.xml? (CO4) 1
(a) META-INF
(b) WEB-INF
(c) src folder
(d) Any of the above folders
- 1-h. Choose the default scope of Spring Bean? (CO4) 1
(a) singleton
(b) prototype
(c) request
(d) session
- 1-i. Analyze the JPA @Entity association attributes? (CO5) 1

- (a) Association validation
- (b) Association multiplicity
- (c) Association cascade behavior
- (d) Association direction

1-j. A superclass is defined as an object without a matching database table in ____ Inheritance, and its attributes and mappings are inherited by its subclasses. (CO5) 1

- (a) Table per class strategy
- (b) Joined table strategy
- (c) Single table strategy
- (d) Mapped Superclass

2. Attempt all parts:-

- 2.a. Define the term Cookies. (CO1) 2
- 2.b. Discuss the life cycle of JSP with its four phases. (CO2) 2
- 2.c. List the advantages of Spring Framework. (CO3) 2
- 2.d. Name and explain Spring Boot key components. (CO4) 2
- 2.e. How is JPA related to ORM. Explain. (CO5) 2

SECTION B 30

3. Answer any five of the following:-

- 3-a. Explain ResultSet. Discuss all the types of ResultSet with example. (CO1) 6
- 3-b. Which two methods are overridden by HTTP servlet? Explain with snippet of code. (CO1) 6
- 3-c. Discuss the purpose and syntax of JSP scriptlet tags, and provide an example of how they can be used. (CO2) 6
- 3-d. Discuss the purpose and key features of the javax.servlet.jsp.JspWriter class in JSP development, and provide an example of how it can be used. (CO2) 6
- 3.e. Explain how can JDBC be used more efficiently in the Spring framework? State with an example showing jdbc connection in storing employee database using Spring. (CO3) 6
- 3.f. Discuss and define the usage of package bean and service. (CO4) 6
- 3.g. Explain atleast six benefits of using an ORM framework like JPA? (CO5) 6

SECTION C 50

4. Answer any one of the following:-

4-a. Construct a program to insert a record in database having two fields username and password using JDBC with the help of PreparedStatement interface and display record inserted message in java application. (CO1) 10

4-b. Explain the usage of the getter and setter methods in ResultSet with example code of each method. (CO1) 10

5. Answer any one of the following:-

5-a. Discuss the differences between the single-threaded and multi-threaded JSP models, and explain how the JSP container handles concurrent requests in each model. (CO2) 10

5-b. Develop a JSP application that uses the JSP scriptlet tag to generate a dynamic HTML table of student data retrieved from a MySQL database. Your application should use JDBC to connect to the database and retrieve the data, and should use the JSP implicit object - out to write the table to the response stream. Write a brief report on the steps you followed to create the application, including details on the JSP life cycle, the JSP API used, and the database connectivity configuration. (CO2) 10

6. Answer any one of the following:-

6-a. Define autowiring in Spring. Implement a program using autowiring and discuss the limitations of autowiring. (CO3) 10

6-b. Implement a program using constructor injection and also discuss how it is different from setter injection. (CO3) 10

7. Answer any one of the following:-

7-a. Create and write code for Spring MVC for a railway reservation form using form tag library. (CO4) 10

7-b. Explain about Spring Boot CRUD Operations and show with example of the delete operation. (CO4) 10

8. Answer any one of the following:-

8-a. Name and mention the required steps to Persist JPA entity in a database? (CO5) 10

8-b. Name and explain the three inheritance mapping strategies about JPA with snippet of code. (CO5) 10