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Subject Code:- AMICSE0601

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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 (20.....- 20.....)

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. Which of the following is a method of JDBC batch process? (CO1) 1
- (a) setBatch()
 - (b) deleteBatch()
 - (c) removeBatch()
 - (d) addBatch()
- 1-b. Which of the following is not a JDBC connection isolation levels? (CO1) 1
- (a) TRANSACTION_READ_UNCOMMITTED
 - (b) TRANSACTION_READ_COMMITTED
 - (c) TRANSACTION_REPEATABLE_READ
 - (d) TRANSACTION_NONREPEATABLE_READ
- 1-c. To retrieve the value of a request parameter in JSP, what should be used. (CO2) 1
- (a) request.getParameter()
 - (b) request.getAttribute()
 - (c) session.getAttribute()

(d) session.getParameter()

- 1-d. Which of the following attributes are mandatory in <jsp:useBean/> tag? (CO2) 1
- (a) id,type
 - (b) id,class
 - (c) type,class
 - (d) type,property
- 1-e. Select the purpose of the Spring MVC module. (CO3) 1
- (a) To provide a web framework for building web applications
 - (b) To provide a data access framework for accessing databases
 - (c) To provide a caching framework for caching data
 - (d) To provide a security framework for securing web applications
- 1-f. Define constructor mode of autowiring? (CO3) 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. A web application that generates a Spring Boot project structure is: (CO4) 1
- (a) Spring Initializr
 - (b) Maven
 - (c) Gradle
 - (d) STS
- 1-h. Select the default value of an input tag. (CO4) 1
- (a) number
 - (b) date
 - (c) email
 - (d) text
- 1-i. ____ is a programming capability that allows data to be converted from object type to relational type and vice versa. (CO5) 1
- (a) ORM

- (b) JPA
- (c) JRE
- (d) Java RMI

- 1-j. Annotation to find a transaction and then fail, complaining that no Hibernate session's been bound to the thread. (CO5) 1
- (a) Transaction
 - (b) Transactional
 - (c) Transactions
 - (d) None of the mentioned

2. Attempt all parts:-

- 2.a. Explain servlet. Write a demo program using HTTPServlet. (CO1) 2
- 2.b. Explain the concepts of JSP API and its usage in web development. (CO2) 2
- 2.c. Explain constructor and dependency injection. (CO3) 2
- 2.d. Explain the flow of Spring MVC with diagram. (CO4) 2
- 2.e. How to create a custom repository in Spring Data JPA? (CO5) 2

SECTION B

30

3. Answer any five of the following:-

- 3-a. Draw the flow of servlet lifecycle. Construct a program showing session tracking. (CO1) 6
- 3-b. Define generic servlet. How does a servlet get access to its init parameters? (CO1) 6
- 3-c. Explain the purpose and syntax of JSP expression tags, and provide an example of how they can be used. (CO2) 6
- 3-d. Explain the purpose and key features of the request Implicit Object in JSP development, and provide an example of how it can be used to access request data. (CO2) 6
- 3.e. Differentiate between constructor injection and setter injection. (CO3) 6
- 3.f. Discuss about Dependency injection in spring boot with example. (CO4) 6
- 3.g. Describe primary keys in entries and how is it used in JPA? (CO5) 6

SECTION C

50

4. Answer any one of the following:-

- 4-a. Explain and differentiate with the help of code the usage of Prepared Statement and ResultSet. (CO1) 10

- 4-b. Create a form that accepts a name , password of the user and pass it on to the servlet. (CO1) 10

5. Answer any one of the following:-

- 5-a. Explain the role of the JSP container in managing the life cycle of a JSP, and discuss how it handles the various stages of the life cycle. (CO2) 10
- 5-b. Develop a JSP application that uses the various Implicit Objects available in JSP to create a simple online shopping cart. Your application should demonstrate the use of Implicit Objects such as request, response, pageContext, session, application, and out. Write a brief report on the steps you followed to create the application, including details on the Implicit Objects and how they are used to build web applications. (CO2) 10

6. Answer any one of the following:-

- 6-a. How would you achieve Transaction Management in Spring? Explain with the help of code.(CO3) 10
- 6-b. Implement a program using setter injection also discuss how it is different from constructor injection. (CO3) 10

7. Answer any one of the following:-

- 7-a. Create and manage student details in H2 database using Spring Boot. (CO4) 10
- 7-b. Explain about Spring Boot CRUD Operations and show with example of the read operation. (CO4) 10

8. Answer any one of the following:-

- 8-a. How does JPA handle optimistic locking? Can you give an example of how you would implement optimistic locking in JPA? (CO5) 10
- 8-b. State the need of using equals() and hashCode() methods, Also explain how to implement them correctly for JPA entities? (CO5) 10