Sl. No.

B3.3-R5 : WEB TECHNOLOGIES

DURATION : 03 Hours   **MAXIMUM MARKS : 100**

Roll No. :

Answer Sheet No. :

Name of Candidate : _____ ; Signature of Candidate : _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, Answer Sheet.

- Question Paper is in English language. Candidate has to answer in English Language only.

- **Question paper contains Seven questions. The Question No. 1 is compulsory. Attempt any FOUR Questions from Question No. 2 to 7.**

- **Parts of the same question should be answered together and in the same sequence.**

- **Questions are** to be answered in the **ANSWER SHEET** only, supplied with the Question Paper.

- **Candidate cannot leave the examination hall/ room without signing on the attendance sheet and handing over his/her Answer Sheet to the Invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**

- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respects.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

1. (a) What is Java ? Discuss the basic features of Java.

   (b) Explain encapsulation. Show how encapsulation helps in data hiding with example.

   (c) Write a Java program to declare and initialize a variable in Java.

   (d) Discuss how CRUD operations are the foundation for most of the web applications in handling data efficiently.

   (e) What is a Servlet ? What are the main components of a Servlet ?

   (f) Write any four queries that can be written using Hibernate Query Language (HQL).

   (g) Write about the common HTTP methods and their importance in defining the types of operation to be performed on a resource located on a web server.

   (7x4)

2. (a) What are methods in Java ? Explain different types of methods with examples.

   (b) What is JDBC ? Explain the process of establishing a database connection using JDBC.

   (9+9)

3. (a) Define Java Server Pages (JSP) directives. Explain the use of Page Directive, Include Directive and Taglib Directive in JSP.

   (b) What are the different DML Operations (Data Manipulation Language) used through JDBC ? Discuss the transaction management in JDBC.

   (9+9)

4. (a) Explain Constructor Injection with an example. When should it be used over Setter Injection ?

   (b) What do you mean by URL rewriting ? What is the importance of URL rewriting ?

   (9+9)

5. (a) What do you mean by a session in a Web Application ? What are the different techniques used for session management in JSP ?

   (b) Discuss the several modules that provide specific functionality contained in Spring's architecture. What are the advantages of spring architecture ?

   (9+9)

6. (a) What is Hibernate ? Explain how O/R (Object-Relational) Mapping is implemented by hibernate ?

    (b) What is the difference between Client Side Form Validation and Server Side Form Validation ? Discuss the challenges that appear in form validation.

                                                                                    (9+9)

7. (a) What are JDBC drivers ? Discuss different types of JDBC drivers and their use.

    (b) What is Exception handling in Java ? What are the different keywords used for exception handling in Java ?

    (c) Explain JSP Expression Language (EL) by discussing its syntax and key benefits. Illustrate how EL can be used to access attributes from various scopes with suitable examples.

                                                                                    (6+6+6)

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SPACE FOR ROUGH WORK