

No. of Printed Pages : 2

MCS-220

**MASTER OF COMPUTER
APPLICATIONS (MCA) (NEW)**

Term-End Examination

December, 2021

MCS-220 : WEB TECHNOLOGIES

Time : 3 Hours

Maximum Marks : 100

Note : (i) Question No. 1 is compulsory.

(ii) Attempt any **three** questions from the rest.

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1. (a) What is design pattern ? What are the advantages of using patterns ? Explain UML diagram of Factory Design Pattern. 10
 - (b) What is Servlet Programming ? Briefly explain servlet life cycle. Also write a servlet which displays “welcome to web programming.” 10
 - (c) What is JSP ? What are JSP directives ? Explain the use of any two JSP directives with the help of a program. 10

- (d) Explain process of setting up database using Hibernate. 10
2. (a) Explain process of creating records using Spring Boot and Hibernate. 10
- (b) Explain how testing of custom login form can be performed with the help of an example. 10
3. (a) Explain issues and challenges of web security. 10
- (b) What is Spring Boot DevTools ? Briefly explain its features. 10
4. (a) Briefly explain Crud Repository of Spring Boot. 10
- (b) Explain Spring MVC configuration process. 10
5. Write short notes on the following : 5 each
 - (a) JSP implicit objects
 - (b) Role based login
 - (c) Session management
 - (d) J2EE Architecture

MCS-220**P. T. O.**

**MASTER OF COMPUTER APPLICATIONS
(MCA-NEW)**

Term-End Examination

June, 2022

MCS-220 : WEB TECHNOLOGIES

Time : 3 hours

Maximum Marks : 100

Note : Question no. 1 is **compulsory** and consists of 40 marks. Attempt any **three** questions from the rest.

1. (a) What is J2EE ? Briefly explain J2EE architecture. 10
- (b) Explain servlet architecture. Also briefly explain the use of servlet with the help of an example. 10
- (c) Explain JSP scripting elements with the help of a program. 10
- (d) What is Spring Boot ? Briefly explain Spring Boot application properties. 10

2. (a) What is a design pattern ? Explain the advantages of using a design pattern in enterprise applications development, with the help of an example. 10
- (b) Explain Hibernate configuration with annotations. 10
3. (a) Explain Spring MVC framework with the help of a suitable diagram. 10
- (b) Explain the working and flow of Struts 2. 10
4. (a) Explain the steps of database connection using JSP and JDBC, with the help of a program. 10
- (b) Explain the use of load() and get() methods of Hibernate session, with the help of an example. 10
5. Write short notes on the following : 4×5=20
- (a) Java Cryptography Architecture (JCA)
- (b) JSP Standard Tag Library (JSTL)
- (c) JSP Life Cycle
- (d) Factory Design Pattern
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Note : Question no. 1 is **compulsory** and consists of 40 marks. Attempt any **three** questions from the rest.

1. (a) What is web application ? Explain the use of web server for development of web applications. Also, describe the differences between web server and web container. 10
- (b) What is design pattern ? Explain the use of Singleton design pattern, with the help of an example. 10
- (c) What is Servlet ? Explain the use of HTTP protocol in servlet programming. Explain the use of GET and POST methods, with the help of examples. 10
- (d) What is Struts 2 ? Explain the core components of Struts 2. 10

2. (a) What are JSP implicit objects ? Explain the use of any four implicit objects. 10
- (b) Explain the use of Authorize Tag for providing view layer security, with the help of program code. 10
3. (a) What is Session Management ? Write a servlet program to demonstrate the use of HttpSession and its methods setAttribute and getAttribute. 10
- (b) Explain how Java Secure Socket Extension (JSSE) is used in web security. 10
4. (a) Explain core container and its components in Spring Framework. 10
- (b) Explain how CRUD is mapped to SQL statement, with example. 10
5. (a) What is Role-based Login ? Explain how user's access can be restricted using Role-based Login. 10
- (b) Write short notes on the following : 10
- (i) Servlet Collaboration
 - (ii) JSP Life Cycle

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Maximum Marks : 100

Note : (i) *Question no. 1 is compulsory.*

(ii) *Attempt any **three** questions from the rest.*

1. (a) Differentiate between web server and web container. Give example for each. 5

(b) Compare GenericServlet with HttpServlet.

5

P. T. O.

- (c) What is session management ? Explain how cookies can be used to session management. 5
- (d) Write JSP program using scriptlets that adds numbers from 1 to 10 and prints the results. Support your code with suitable comments. 5
- (e) What is a ValueStack in struts ? How ValueStack is related to OGNL (Object Graph Navigation Language) ? 5
- (f) Differentiate between Spring and Hibernate. 5
- (g) What is Dependency Injection in spring framework ? Name the ways through which Dependency Injection can be performed. 5
- (h) What is Bootstrap ? Briefly discuss the factors that makes Bootstrap a popular choice for the development of web applications. 5

2. (a) What is Spring Boot ? Write the steps to deploy Spring Boot web application as JAR and WAR files ? 10
- (b) What is Hibernate Query Language (HQL) ? How does HQL differ from SQL ? Write HQL queries for Select, Update, Delete and Insert (make suitable assumptions). 10
3. (a) Briefly discuss the term “Spring Data Repository”. Also explain the CrudRepository, PagingAndSorting Repository, and JpaRepository interfaces of Spring DataRepository. 10
- (b) Explain the following : 10
- (i) Java Cryptography Architecture (JCA)
 - (ii) Java Secure Socket Extension (JSSE)
4. (a) What is Spring Security ? Discuss the terms “Authentication” and “Authorization” in context of Spring Security. Also mention methods for both. 10

- (b) Why login form customization is required in an application ? Explain the customized login form configuration with a simple code. Also, discuss `loginPage()` and `loginProcessing Url()` in Spring Boot Security Configuration. 10

5. Write short notes on the following : 5×4=20

- (i) Servlet Architecture
- (ii) JSP life cycle
- (iii) Annotations and its types
- (iv) Aspect-oriented programming