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MCS–220

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

Term-End Examination

December, 2023

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.*

1. (a) What is J2EE ? Briefly discuss the components of J2EE. 5
- (b) What is a servlet ? Briefly discuss the lifecycle of servlet. 5
- (c) Differentiate between session and cookie. Give suitable example for each. 5

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- (d) Write JSP program for Fibonacci series. Support your code with suitable comments. 5
 - (e) What are Interceptors in struts2 ? Briefly discuss the role of Interceptors in struts2. 5
 - (f) Differentiate between spring boot and spring MVC. 5
 - (g) Briefly discuss the term “Inversion of Control (IoC)”. Also, draw block diagram for IoC flow. 5
 - (h) What is Custom CSS ? How custom CSS can be included in to JSP ? Discuss. 5
2. (a) What is the need of application properties in spring boot ? Explain how application properties of spring boot can be set through properties files, command-line arguments and environment variables. 10
- (b) What is Hibernate ? Briefly discuss the various states of Hibernate Entity Life Cycle. Also, draw block diagram for the same. 10

3. (a) What is the relationship between JPA, spring data JPA and Hibernate ? Explain Eager and Lazy loading in Hibernate. How does the Eager and Lazy loading improves the performance of Hibernate applications ? 10
- (b) What is Message Digest ? How does message digest differ from message authentication code ? Give characteristics of both. 10
4. (a) Briefly discuss the following security vulnerabilities of any web app : 10
- (i) Cross Site Scripting (XSS)
 - (ii) Cross-Site Request Forgery (CSRF)
 - (iii) SQL Injection (SQLi)
 - (iv) Denial-of-Service (DoS)
 - (v) Insecure Direct Object References (IDOR)
- (b) Describe role-based login. Write the sample code to configure the role-based login. 5

- (c) What is role based access control ? Write the simple configuration code to restrict the URL access based on role. 5
5. Write short notes on the following : 5×4=20
- (i) Design Patterns
 - (ii) Servlet Collaboration
 - (iii) Components of JSP
 - (iv) Spring Framework