

- N.B: (1) All questions are compulsory.
 (2) Figures to the right indicate marks.
 (3) Illustrations, in-depth answers and diagrams will be appreciated.
 (4) Mixing of sub-questions is not allowed.

- Q1. Attempt the following (any THREE): (15)
- State and explain any five methods of `HttpServletRequest`.
 - Explain the Java Servlet Architecture.
 - What are Cookies? Explain how servlets create Cookie.
 - Write a Servlet program to display current date.
 - Write a Servlet file which will display if a number N is prime or not prime. Number N is accepted from `prime.html`
 - Write a program which stores a cookie and read the cookie to display the information.
- Q2. Attempt the following (any THREE): (15)
- State and explain advantages of JSP over Servlets.
 - Write a note on different types of scope for JSP objects
 - List and Explain four jsp action elements
 - Write a program using JSP tags to compute square of numbers from 1 to 20
 - Write a JSP file which will display the contents of a database table.
 - Write a JSP page, which displays three text boxes for Department Number, Department Name and Location. On click of the submit button call another JSP page which will enter the values in the database with the help of `PreparedStatement` class. Also use `jspInit()` and `jspDestroy()` to open and close the connection. (`Register.jsp`).
- Q3. Attempt the following (any THREE): (15)
- What is Enterprise java Beans? Explain types of EJB.
 - What is a Message Driven Bean? State its characteristics.
 - Write the difference between java beans and enterprise java beans.
 - Explain the life cycle of stateful Session Bean.
 - Write the difference between statefull session beans and stateless session beans.
 - What are various ways of passing parameters in EJB?
- Q4. Attempt the following (any THREE): (15)
- State the requirement of JAX-WS end point / implementation.
 - What is JAX-WS? Explain the uses of JAX-WS.
 - Explain the procedure to build a Web Service, using JAX-WS.
 - Write a web service method that accepts a number n and returns the value of cube of a number.
 - Write a web service method that accepts a number n and returns the value of $1+2+3+...+n$
 - Write a `WebService` which will return factorial of a number passed to it.

Q5.**Attempt the following (any THREE):**

- (A) Explain Life Cycle of Servlet.
- (B) Write a short note on HttpSession.
- (C) Write a short note on JSP Access Model
- (D) Write a short note on JSP include directive.
- (E) Write a short note on State Management Modes of java bean
- (F) Write a short note on SOAP and UDDI.
