

**ADVANCED JAVA AND WEB TECHNOLOGY
(INF3101)**

Time Allotted : 2½ hrs

Full Marks : 60

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 4 (four) from Group B to E, taking one from each group.

Candidates are required to give answer in their own words as far as practicable.

Group – A

1. Answer any twelve:

12 × 1 = 12

Choose the correct alternative for the following

- (i) The world's first real Web browser was _____.
- (a) Mosaic (b) Internet Explorer
(c) Netscape Navigator (d) None of these
- (ii) HTTP is called a _____ protocol.
- (a) stateful (b) stateless
(c) state-aware (d) connection-oriented
- (iii) Which of the following is correct about JavaScript?
- (a) JavaScript is an Object-Based language
(b) JavaScript is Assembly-language
(c) JavaScript is an Object-Oriented language
(d) JavaScript is a High-level language
- (iv) JavaScript is a _____.
- (a) strongly typed language (b) loosely typed language
(c) machine level language (d) markup language
- (v) Which of the following is true about invoking a method on an object in JavaScript?
- (a) The method is always invoked with the object as its context
(b) The method's `this` keyword refers to the global object in strict mode
(c) The method can be invoked with any arbitrary context using call() or apply()
(d) The method will always return undefined.
- (vi) What is the primary difference between an event handler and a callback function in JavaScript?
- (a) Event handlers are synchronous, while callbacks are asynchronous.
(b) Callbacks are generally associated with DOM events, while event handlers are not.
(c) Event handlers are executed automatically when an event occurs, while callbacks are passed as arguments to other functions.
(d) Event handlers can only be used in classes, while callbacks can be used globally.

- (vii) Which of the following HTTP method should be used to fetch resource using RESTful web service?
 (a) get (b) delete (c) put (d) options
- (viii) Which of the following technology is not part of J2EE architecture.
 (a) JSP (b) Servlet (c) EJB (d) CORBA
- (ix) Which of the following statements is true about Promises in JavaScript?
 (a) A Promise is always executed synchronously
 (b) Promises represent the eventual completion (or failure) of an asynchronous operation and its resulting value
 (c) Promises must be handled using `async` functions only
 (d) Promises can only be resolved, not rejected.
- (x) What is the purpose of the `new` keyword in JavaScript?
 (a) It creates a new variable.
 (b) It invokes a function as a constructor and returns a new object.
 (c) It calls a function in strict mode.
 (d) It rebinds the `this` keyword to a different context.

Fill in the blanks with the correct word

- (xi) JSF application life cycle consists of _____ phases.
- (xii) Cookies are stored in _____.
- (xiii) _____ tag describes the document's information like keyword, author name, expiry date etc.
- (xiv) The doGet() method extracts value of a parameter by using _____.
- (xv) The external style sheets can be applied for _____.

Group - B

- 2. (a) Why HTTP is called stateless, connectionless, media independent protocol? What is the default port number of http? [[CO1](Remember/LOCQ)]
 - (b) Explain HTML frame with the help of an example. State the disadvantages of HTML frame. [[CO1](Apply/IOCQ)]
 - (c) Describe the three tier architecture in detail. [[CO1](Remember/LOCQ)]
- (3 + 1) + (3 + 2) + 3 = 12**
- 3. (a) Describe the following HTML5 elements with example
 (i) Section (ii) Nav (iii) Article (iv) MAIN
 (v) video (vi) audio [[CO1](Remember/LOCQ)]
 - (b) Write a CSS rule that changes the color of all elements containing attribute lass="greenMove" to green and all heading elements a font size =36pt. Use internal style sheet. [[CO1](Apply/IOCQ)]
- 6 + 6 = 12**

Group - C

4. (a) Design the login page of a website. It will contain two fields userid and password such that user id should contain only characters(a..z,A...Z) and password should be at least 6 characters. When the focus moves from one element to other, the characters typed in should be converted to capital letters automatically. [[CO2](Apply/IOCQ)]
- (b) State the purpose of following different type of expression in the context of JavaScript.
(i) Function Definition Expression (ii) Property Access Expression [[CO2](Remember/LOCQ)]
- 8 + 4 = 12**
5. (a) Define arrow function in the context of JavaScript function. [[CO2](Remember/LOCQ)]
- (b) Explain the purpose of Array.of() function in JavaScript with example. [[CO2](Apply/IOCQ)]
- (c) Describe the destructuring assignment with example in the context of JavaScript? [[CO2](Apply/IOCQ)]
- 4 + 4 + 4 = 12**

Group - D

6. (a) Give an example of asynchronous programming with async and await in the context of JavaScript. [[CO3](Remember/LOCQ)]
- (b) What is Promises in the context of JavaScript? Give an example. [[CO3](Apply/IOCQ)]
- 6 + (2 + 4) = 12**
7. (a) Write a server side JavaScript program which will parse a URL and print the values present in the query string. [[CO3](Apply/IOCQ)]
- (b) Define inner function. Give a example of inner function in the context of JavaScript. [[CO3](Remember/LOCQ)]
- 6 + (2 + 4) = 12**

Group - E

8. (a) Explain 3-tier architecture of J2EE. State the advantages of 3-tier architecture over 2-tier architecture. [[CO6](Remember/LOCQ)]
- (b) Describe the Facelets in the context of Java Server Faces. [[CO5](Remember/LOCQ)]
- (c) Explain the resource handling process in the context of Java Server Faces. [[CO5](Remember/LOCQ)]
- (4 + 2) + 3 + 3 = 12**
9. (a) Explain the process of binding a request to a resource in the context of RESTful Web Services. [[CO5](Remember/LOCQ)]
- (b) Can all application servers run EJB? State when to use EJB. [[CO6](Remember/LOCQ)]

(c) Discuss the importance of abstract schema in the context of Entity Beans.

[[CO6](Remember/LOCQ)]

4 + 4 + 4 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	59.37	40.62	0