### ADVANCED JAVA & WEB TECHNOLOGY (INFO 3101)

**Time Allotted: 3 hrs** 

Full Marks: 70

Figures out of the right margin indicate full marks.

### Candidates are required to answer Group A and <u>any 5 (five)</u> from Group B to E, taking <u>at least one</u> from each group.

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

## Group – A (Multiple Choice Type Questions)

Choose the correct alternative for the following:  $10 \times 1 = 10$ 1. (i) A request from client is basically made of \_\_\_\_\_. (a) Method (b) Task (c) Event (d) Signal (ii) What programming language(s) or scripting language(s) does Java Server Pages (ISP) support? (a) VBScript only (b) Jscript only (d) All of the mentioned (c) Java only Which of the following object is the main entry point to all client-side JavaScript (iii) features and APIs? (a) Position (b) Window (c) Standard (d) Location Which of the following Attribute is used to include External IS code inside your (iv) **HTML DOCUMENT?** (a) ext (b) script (c)link (d) src (v) Which of the following is true about servlets? (a) Servlets execute within the address space of web server (b) Servlets are platform-independent because they are written in java (c) Servlets can use the full functionality of the Java class libraries (d) All of the above. (vi) When is destroy() method called in Servlet? (a) The destroy() method is called only once at the end of the life cycle. (b) The destroy() method is called after execution of doFilter method (c) The destroy() method is called only once at the begining of the life cycle (d) none

- (vii) Application is instance of which class?(a) javax.servlet.Application(c) javax.servlet.Context
- (b) javax.servlet.HttpContext
- (d) javax.servlet.ServletContext
- (viii) Which one is the correct order of phases in JSP life cycle?
  - (a) Initialization, Cleanup, Compilation, Execution
  - (b) Initialization, Compilation, Cleanup, Execution
  - (c) Compilation, Initialization, Execution, Cleanup
  - (d) Cleanup, Compilation, Initialization, Execution
- (ix) Which of the following is true about entity bean?
  (a) Stores data of a particular user for a single session.
  (b) Invoked by EJB container when it receives a message from queue
  (c) Represent persistent data storage
  (d) None of the above.
- (x) Which of the below is not a session tracking method?
   (a) URL rewriting
   (b) History
   (c) Cookies
   (d) SSL sessions.

# Group-B

- 2. (a) Differentiate between applet and swing. [(CO1) (Analyze/IOCQ)]
  - (b) Implement a java swing program which will accept two values in text boxes and display theaddition result in third text box. [(CO1) (Apply/IOCQ)]
  - (c) With the help of an example explain HTML frame. State the disadvantages of using HTML frame. [(CO1) (Understand/LOCQ)]

3 + 4 + (3 + 2) = 12

- 3. (a) Justify the significance of the name HTML. [(CO1) (Create/HOCQ)]
  - (b) Design a java swing programme where there will be three buttons; red, green and blue. Clicking on thisbuttons, the background colours will be changed accordingly. [(CO1) (Create/HOCQ)]
  - (c) Explain different selector present in CSS. Give example.

(CO1)(Understand/LOCQ)] 3 + 4 + 5 = 12

# Group - C

- 4. (a) Explain with example the purpose of following expressions in the context of JavaScript.
  - (i) Function Definition Expression
  - (ii) Property Access Expression
  - (iii) Conditional Property Access. [(CO1) (Remember/LOCQ)]

(b) Describe with example the purpose of for/of and for/in loop statements in JavaScript. [(CO1) (Understand/LOCQ)]

 $(2 \times 3) + (3 \times 2) = 12$ 

[(CO2) (Understand/LOCQ)]

- 5. (a) Define Servlet. [(CO2) (Understand/LOCQ)]
  - (b) Describe life cycle of Servlet with diagram.
    - (c) Implement concept of cookie using Servlet. [(CO3)( Apply /HOCQ)]

2 + 4 + 6 = 12

### Group - D

- 6. (a) Draw and explain JSP lifecycle. [(CO4) (Understand/LOCQ)]
  - (b) Design a page with the help of JSP which is used to read the value of check boxes from an HTML pageand display the value. Write all necessary assumptions.

[(CO4) (Create/HOCQ)](2 + 4) + 6 = 12

- 7. (a) Using JSP and JDBC technology design a student registration form which will be submittedafter clicking submit button. If the entry is duplicate it will generate an error message else itwill supply user name and password for respective student. [(CO4) (Apply/IOCQ)]
  - (b) Write a JSP to display the Fibonacci series for a given term. [(CO3) (Apply/IOCQ)] 7 + 5 = 12

## Group - E

- 8. (a) Explain the concept of Abstract Schema and Persistence in the context of Entity Bean's Container Managed Persistence. [(CO5) (Remember/LOCQ)]
  - (b) Describe the architecture of Remote Method Invocation (RMI) technology with diagram. Definemarshalling and unmarshalling in the context of RMI.

[(CO6) (Understand/LOCQ)]

- (c) Define Java Native Interface (JNI). [(CO5) (Understand/LOCQ)] 4 + (4 + 2) + 2 = 12
- 9. (a) Differentiate between XML and HTML. [(CO6) (Analyze/IOCQ)]
  - (b) Explain with example the purpose of XML elements and attributes. [(CO6) (Understand/LOCQ)]
  - (c) Create a XML file for book related informations (title, author, price, publisher) and validate it using DTD and XMLSchema separately. [(CO6) (Create/HOCQ)]
     2 + 4 + 6 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	52.10%	21.90%	26.00%

### **Course Outcome (CO):**

After the completion of the course students will be able to

INF03101.1. Design web pages using HTML, Java Script and CSS and compare between Applet and swing.

INF03101.2. Distinguish between Servlet and CGI technology.

INF03101.3. Explain the relationship between JSP and Servlet.

INFO3101.4. Implement server side program using servlet and JSP to a DBMS and perform insert, update and delete operations on DBMS table.

INF03101.5. Analyze J2EE architecture.

INFO3101.6. Describe EJB, RMI and XML and relate them with J2EE.

\*LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question; HOCQ: Higher Order Cognitive Question

Department & Section	Submission Link
IT	https://classroom.google.com/c/NDA1MjEwMjMwOTQ1/a/NDYzNjAzMzQxNTk4/details