



UCSC

University of Colombo, Sri Lanka

University of Colombo School of Computing



**DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY
(EXTERNAL)**

Academic Year 2023— 2nd Year Examination — Semester 4

IT4206 — Enterprise Application Development

Part 1 - Multiple Choice Question Paper

(2 Hours for both Part 1 and Part 2)

Important Instructions

- This paper has **two (2) parts, Part 1 and Part 2**.
- The total duration of **both Part 1 and Part 2 is 2 hours**.
- The final mark for the paper will be determined by averaging the scores of Part 1 and Part 2, each of which is graded out of **100**.
- The medium of instructions and questions is English.
- This paper (Part 1) has **25 MCQ questions** on **7 pages**. Answer **all** questions.
- Each question will have **5 (five)** choices with **ONLY ONE** correct answer.
- Answers should be marked on the **special answer sheet** provided.
- Note that questions appear on both sides of the paper. If a page or part of a page is not printed, please inform the supervisor/invigilator immediately.
- Mark the correct choices on the question paper first and then transfer them to the given answer sheet which will be machine marked. **Please completely read and follow the instructions given on the other side of the answer sheet before you shade your correct choices.**
- Any electronic device capable of storing and retrieving text, including electronic dictionaries, smartwatches, mobile phones, and Calculators are **not** allowed.
- *All Rights Reserved.* This question paper can NOT be used without proper permission from the University of Colombo School of Computing.

1). Which Java EE API allows applications to connect to relational databases?

- | | | |
|-----------------|---------|---------------------------------|
| (a) Servlet | (b) EJB | (c) Java Persistence API |
| (d) JavaSession | (e) JSF | |

2). In a multi-tier architecture for an online shopping application, where would a component responsible for calculating product discount rates be best placed?

- | |
|--------------------------------|
| (a) Client tier |
| (b) Web tier |
| (c) Data or EIS Tier |
| (d) Business logic tier |
| (e) Network tier |

3). What is the recommended method for distributing standalone Java applications to ensure they can run on any platform?

- | |
|-------------------------------------|
| (a) Java Archive (JAR) Files |
| (b) Java SE Files |
| (c) Web Archive (WAR) Files |
| (d) Enterprise Archive (EAR) Files |
| (e) Java EE Files |

4). In a multi-tier application architecture, which layer is responsible for handling communication protocols such as SOAP and REST?

- | |
|---|
| (a) Business logic tier |
| (b) Client tier |
| (c) Web tier |
| (d) Enterprise information systems tier |
| (e) Enterprise tier |

5). Imagine you're developing an application. Which statement **best** describes the deployment environment for a Java EE application compared to a Java SE application?

- | |
|--|
| (a) Java EE applications are hosted and managed by an application server |
| (b) Java SE applications cannot connect to a database and perform transactions |
| (c) Java SE applications are always single-threaded. Only Java EE applications are multi-threaded |
| (d) Java EE applications cannot perform asynchronous messaging |
| (e) In Java EE applications, multi-threading and concurrency has to be manually implemented by the developer |

6). Among the following statements, what statements are correct regarding web servers?

- (a) Gets the client request and provide the respond to the client
- (b) It can be a hardware device or an application
- (c) If it failed to find what the user request, it will inform that the resource is not available
- (d) Examples for web servers are Chrome, Firefox, and Safari
- (e) Examples for web servers are Apache, IIS and Nginx.

- (a) All a,b,c,d, and e
- (b) Only a, b and c
- (c) **Only a, b, and e**
- (d) Only c, d, and e
- (e) Only b, c, d and e

7). In Enterprise JavaBeans (EJBs), which type of bean represents a component on the server-side that is created specifically for a single client interaction and maintains the state of that interaction throughout the session?

- (a) Entity Beans
- (b) Message driven beans
- (c) Request beans
- (d) Singleton session beans
- (e) **Session beans**

8). In Enterprise JavaBeans (EJBs), what is the annotation that can be used to execute a method on a stateful session bean right before it's written to secondary storage for passivation?

- | | | |
|-------------------|--------------------------|-----------------|
| (a) @PostActivate | (b) @PrePassivate | (c) @PreDestroy |
| (d) @Remove | (e) @Destroy | |

9). In Enterprise JavaBeans (EJBs), after the container decides to offload a stateful session bean's data from primary memory for resource management, to what state does the bean transition?

- | | | |
|--------------------|-----------|--------------------|
| (a) Does not exist | (b) Ready | (c) Passive |
| (d) Destroy | (e) Open | |

Answer questions **10** and **11** using the following code block, which shows a client requests a service from a server.

```
[—A—] ("/echo")
public class EchoServer {
    [—B—]
    public String echo(String incomingMessage) {
        return "I am Echo Server. This is the message you
send to me - <br>" + incomingMessage;
    }
}
```

10). What annotations should be used in blanks A and B, respectively?

- (a) **@ServerEndpoint** and **@OnMessage**
- (b) @OnOpen and @OnMessage
- (c) @OnOpen and @OnClose
- (d) @ServerEndpoint and @OnClose
- (e) @OnOpen and @OnClose

11). Among the following, which packages should definitely be imported to compile the above code segment without errors?

- (a) javax.websocket.server.ServerEndpoint
- (b) javax.websocket.OnMessage
- (c) javax.websocket.OnOpen
- (d) javax.websocket.OnError
- (e) javax.websocket.OnClose

- (a) All a,b,c,d, and e
- (b) Only a, b, d and e
- (c) Only c, d, and e
- (d) **Only a, and b**
- (e) Only b and c

12). Among the following, which option shows the correct set of statements on web server-client communications?

- (a) Client can establish a lightweight connection with the server
- (b) It facilitates a bi-directional communication
- (c) It facilitates a uni-directional communication
- (d) Servers can push data to the connected clients when only needed
- (e) Client need to reconnect all the time before sending the information to the server

- (a) All a,b,c,d, and e
- (b) **Only a, b and d**
- (c) Only a, b and c
- (d) Only b, d, and e
- (e) Only a, c, d and e

13). What is the HTTP request method used to request information from the Web server?

- | | | |
|----------------|----------|------------|
| (a) GET | (b) POST | (c) DELETE |
| (d) REQUEST | (e) HEAD | |

14). What is the range of the status code received from the Web server through the HTTP reply if there is a redirection of the request?

- | | | |
|---------------|---------------|----------------------|
| (a) 100 range | (b) 200 range | (c) 300 range |
| (d) 400 range | (e) 500 range | |

15). In web development, what technology allows you to seamlessly integrate server-side Java code snippets with HTML markup, enabling dynamic content generation based on Java code execution?

- | | | |
|----------------|----------------|----------|
| (a) JSP | (b) jQuery | (c) JSON |
| (d) XML | (e) JavaScript | |

16). In Java servlets, what method within the RequestDispatcher interface facilitates the seamless transfer of a request (including its parameters and attributes) to another resource, such as another servlet, or static HTML content?

- | | | |
|----------------------|----------------|---------------|
| (a) forward() | (b) include() | (c) request() |
| (d) respond() | (e) dispatch() | |

17). In Java, which annotation can be used to signal to developers that a specific method is no longer the preferred approach and might be eliminated in forthcoming software updates?

- | | | |
|---------------|-----------------------|------------------------|
| (a) @Override | (b) @SuppressWarnings | (c) @Deprecated |
| (d) @Listner | (e) @Servlet | |

18). Which Java annotation is used to instruct the compiler to ignore specific warnings for an element of your code?

- | | | |
|----------------|--------------------|------------------------------|
| (a) @Override | (b) @Deprecated | (c) @SuppressWarnings |
| (d) @NoWarning | (e) @RejectWarning | |

19). Among the following what are the different categories of elements which make up a Java Server Page?

- (a) Declarations
- (b) Scriptlets
- (c) Expressions
- (d) Directives
- (e) Loops

- | |
|-------------------------------|
| (a) All a,b,c,d, and e |
| (b) Only a, and b |
| (c) Only b and c |
| (d) Only b, d, and e |
| (e) Only a, b, c and d |

20). In the Java servlets, which annotation allows you to define configuration settings specific to a servlet instance, accessible as key-value pairs during initialisation?

- | | | |
|--------------------------|-------------------|----------------|
| (a) @webservlet | (b) @webListener | (c) @webFilter |
| (d) @webInitParam | (e) @HandlesTypes | |

21). Among the following methods defined by *ServletContextListener* interface in Java servlets, which is invoked during the lifecycle of a web application?

- | | | |
|-------------------------------|--------------------------|----------------------|
| (a) contextDestroyed() | (b) attributeAdded() | (c) sessionCreated() |
| (d) requestDestroyed() | (e) requestInitialized() | |

22). What uses from among the following to wrap the Java code block in JSP which executes on the server-side?

- | | | |
|-------------------------------------|---|-------------------------------------|
| (a) <code>< %!...% ></code> | (b) <code>< %...% ></code> | (c) <code>< % = ...% ></code> |
| (d) <code>< %\$....% ></code> | (e) <code>< %@...% ></code> | |

23). In JSON data format, how would you express “Nimal” as the value for a key named “firstName” within a name/value pair?

- | |
|---|
| (a) <code>firstName : “Nimal”</code> |
| (b) <code>firstName : ‘Nimal’</code> |
| (c) <code>“firstName” : “Nimal”</code> |
| (d) <code>‘firstName’ : Nimal</code> |
| (e) <code>‘firstName’; Nimal</code> |

24). Which method within the HttpSession interface is used to explicitly destroy a user’s session in a Java EE application?

- | | | |
|--------------------------------------|-------------------------------|----------------------------------|
| (a) <code>expire()</code> | (b) <code>destroy()</code> | (c) <code>removeSession()</code> |
| (d) <code>invalidate()</code> | (e) <code>endSession()</code> | |

25). Within a Java Servlet class, which method is primarily responsible for receiving and handling incoming HTTP requests from the web container?

- | | | |
|-------------------------|-----------------------------------|----------------------------|
| (a) <code>init()</code> | (b) <code>service()</code> | (c) <code>destroy()</code> |
| (d) <code>post()</code> | (e) <code>get()</code> | |

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