



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2022/2023**

COURSE NAME : TECHNOLOGY OF WEB SERVICE
COURSE CODE : BIW 20404
PROGRAMME CODE : BIW
EXAMINATION DATE : JULY/AUGUST 2023
DURATION : 3 HOURS
INSTRUCTION

1. ANSWER **ALL** QUESTIONS.
2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.
3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK.

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

Q1 State **TRUE** or **FALSE** for the following statements.

- (a) Representational State Transfer (REST) defines an architectural approach whereas Simple Object Access Protocol (SOAP) refers to a protocol that poses a restriction on the format of the Extensible Markup Language (XML). (1 mark)
- (b) The Web service stack consists of three layers: the XML messaging layer, the service description layer, and the transport layer. (1 mark)
- (c) SOAP faults can only be sent as a response to a SOAP request. (1 mark)
- (d) Authentication and authorization are not important in Web service security because messages exchanged between service providers and consumers are always encrypted. (1 mark)
- (e) Secure Sockets Layer or Transport Layer Security (SSL/TLS) encryption can be used to secure Web service communications by encrypting messages in transit. (1 mark)

- Q2**
- (a) Describe the main role of Universal Description, Discovery, and Integration (UDDI) in Web service. (3 marks)
 - (b) Describe Service Description and its function. (4 marks)
 - (c) Define **TWO (2)** main features of the SOAP-based model's applicability in Web services. (4 marks)

Q3 Answer the following questions by referring to the case scenario in **Figure Q3**.

The ICE Company wishes to save product information in an XML file. The situation below can aid in the creation of the XML document.

The root tag will be products. Each product will have its own entry with the product_id, production_date, category, and description. A product can be intended for either international or domestic market. Country, shipping_option, and supplier will be available for international products. Then there's the supplier and state for the domestic product.

Figure Q3

- (a) Identify the mandatory elements that need to be included in each product entry in the XML file. (2 marks)

- (b) Produce an XML document for the given scenario in **Figure Q3**. (8 marks)

Q4 (a) **Figure Q4(a)(i)** depicts the general structure of a SOAP XML request. Write an appropriate structure file for the SOAP XML response using the given input body structure, as provided in **Figure Q4(a)(ii)**. (8 marks)

```

1 <?xml version="1.0" encoding="UTF-8" ?>
2 <Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
3 <Body>
4   <getCourseDetailRequest xmlns="http://wchm.com/5sktm/course?">
5     <id>course1</id>
6   </getCourseDetailRequest>
7 </Body>
8 </Envelope>

```

Figure Q4(a)(i)

```

<ns2:course>
  <ns2:id>course1</ns2:id>
  <ns2:name>Web Technology Trends</ns2:name>
  <ns2:description>Future</ns1:description>
</ns2:course>

```

Figure Q4(a)(ii)



- (b) If a request file contains an invalid course ID, a SOAP fault message could be returned. It may contain messages that assist the client in resolving an error or unexpected condition.

Create a SOAP fault file that displays the error message "NO COURSE ID".

(8 marks)

Q5 Answer the following questions by referring to the case scenario in **Figure Q5**.

In the education loan programme offered by Affin Bank, the education loan service needs to discover the Best Rate (BR) service before using it. The BR is a reference rate established by Bank Negara Malaysia.

The BR Web service is listed in the UDDI registry as a Web service capable of offering information about the Affin bank's BR. When the loan service is initiated, the UDDI registry is retrieved and searched for a Web service that provides the bank's BR information.

The UDDI registry returned the BR service's Uniform Resource Identifier (URI) and details about how to access the BR service, which are derived from the WSDL interface.

Figure Q5

- (a) Illustrate the Web service discovery process based on the scenario in **Figure Q5**.
(8 marks)
- (b) Explain the discovery process in detail based on your answer in **Q5(a)**.
(6 marks)
- (c) Demonstrate the possible WSDL document to describe the service. You are only required to write down the elements that come with tags `<message></message>` and `<portType></portType>`.
(8 marks)

Q6 Answer the following questions by referring to the case scenario in **Figure Q6**.

ACE Enterprise is a retail company, wants to implement a Web service to automate their inventory management system (IMS). They want to provide a way for their suppliers to access and update product information via an API and have those changes automatically reflected in their inventory system.

Figure Q6

- (a) Discuss **THREE (3)** potential benefits of implementing a Web service for the ACE Enterprise IMS. (6 marks)
- (b) Describe **THREE (3)** security measures that ACE Enterprise can implement to protect the security of their Web service and prevent unauthorised access or change of their inventory data. (6 marks)
- (c) Discuss **TWO (2)** emerging technologies in Web services that ACE Enterprise can consider for their IMS. (4 marks)

- END OF QUESTIONS -