Total No. of Questions: 25

Enrollment No : _____

MEDICAPS UNIVERSITY

Faculty of Engineering / Science

End Semester Examination May 2025

CS3EL16 / BC3EL08 Programming With XML

Programme	:	B.Tech./B.Sc.	**Branch/Specialisation**	:	CSE All / CS
Duration	:	3 hours	**Maximum Marks**	:	60

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

Section 1 (Answer all question(s))

		Marks	CO	BL
Q1.	Which of the following is a major difference between XML and HTML?	1	2	2
	(●) XML is case-sensitive, whereas HTML is not ( ) XML does not allow nesting of elements ( ) HTML is used for data storage, whereas XML is used for web page design ( ) XML uses predefined tags, whereas HTML allows user-defined tags			
Q2.	What is the purpose of XML validation?	1	1	1
	( ) To ensure the document is easy to read (●) To guarantee the document is well-formed and valid against a schema or DTD ( ) To add style to the document ( ) To compress the document size			
Q3.	What is the primary purpose of a Document Type Definition (DTD) in XML?	1	1	1
	(●) To define the structure and rules of an XML document ( ) To style XML documents ( ) To store data in XML format ( ) To convert XML to HTML			
Q4.	Which of the following symbols in DTD specifies that an element can appear zero or more times?	1	1	1
	( ) ? ( ) + (●) * ( ) #			
Q5.	How can be defined within an XSD?	1	1	1
	( ) </xs:element name = "x" type = "y"/> ( ) <xs:element name = "x" type = "y"> ( ) <?xs:element name = "x" type = "y"/> (●) <xs:element name = "x" type = "y"/>			
Q6.	Simple type Built into Schema "data" represent a data in-	1	1	1
	( ) MM-DD-YY ( ) DD-MM-YYYY (●) YYYY-MM-DD ( ) YY-MM-DD			
Q7.	What is the correct syntax of for-each in XSLT?	1	1	1
	( ) <xsl:foreach> code...</xsl:for for each> ( ) <xsl:foreach> code...</xsl:foreach> (●) <xsl:for-each> code...</xsl:for-each> ( ) <//xsl:foreach> code...</xsl:foreach>			
Q8.	Which simple output filters are supported by XSLT?	1	1	1
	( ) =, !=, <, & (●) =, !=, <, > ( ) =, #, <, > ( ) ^, !=, <, >			
Q9.	What does [position()=2] do in an XPath expression?	1	2	2
	( ) Selects all elements ( ) Selects the first element (●) Selects the second element ( ) Selects the last element			

Q10. Which of the following XPath expressions selects the "author" elements that are the second or third child of the "book" element with an attribute named "isbn" that has a value of "12345" in an XML document? **1 2 2**

- (●) /bookstore/book[@isbn='12345′]/ author[position()=2or position()=3]
- ( ) /bookstore/book[@isbn='12345′]/ author[position()=2,3]
- ( ) /bookstore/book[@isbn='12345′]/ author[2,3]
- ( ) /bookstore/book[@isbn='12345′]/ author[position()=2]/following-sibling::author[1]

Section 2 (Answer all question(s))

Marks CO BL

Q11. Define XML and list any two features of XML. **2 2 2**

Rubric	Marks
Definition of XML	1
Any two features of XML	1

Q12. Differentiate between XML and HTML in terms of purpose, syntax, and data handling. **3 4 4**

Rubric	Marks
Purpose	1
Syntax	1
Data handling	1

Q13. (a) Write an XML document structure for a simple notebook containing multiple notes with attributes for date and priority. **5 3 3**

Rubric	Marks
Proper XML declaration	1
Root element and nesting structure	2
Correct use of attributes for date and priority	2

(OR)

(b) Explain the significance of XML validation. Describe two validation techniques used in XML.

Rubric	Marks
Significance of XML validation	2
Description of DTD validation	1.5
Description of XML Schema validation	1.5

Section 3 (Answer all question(s))

Marks CO BL

Q14. Differentiate between internal and external DTDs. **2 4 4**

Rubric	Marks
Definition of internal DTD	1
Definition of external DTD	1

Q15. Write a DTD snippet to define a simple XML element <note> containing child elements <title> and <content>. **3 2 2**

Rubric	Marks
Correct syntax for <!ELEMENT note>	1
Definition of child elements <title> and <content>	1
Proper structure of DTD snippet	1

Q16. (a) Explain the advantages and disadvantages of using DTD in XML validation. **5 4 4**

Rubric	Marks
Two advantages of DTD	2
Two disadvantages of DTD	2
Example or explanation to support the answer	1

(OR)

(b) Analyze the structure of an XML notebook system and design an external DTD to enforce rules for a <note> element. The <note> should contain child elements <title> and <content>, and an attribute date. Explain how this DTD ensures data consistency and demonstrate how it is linked to an XML file."

Rubric	Marks
Analysis of XML structure and need for DTD	1.5
Correct external DTD syntax with element and attribute definitions	2
Proper linking of DTD in the XML file	1.5

Section 4 (Answer all question(s))

Marks CO BL

Q17. What is an XML Namespace? Why is it important? **2 2 2**

Rubric	Marks
Definition of XML Namespace	1
Explanation of its importance	1

Q18. Differentiate between simple and complex data types in XML Schema with examples. **3 4 4**

Rubric	Marks
Definition of simple data types with an example	1.5
Definition of complex data types with an example	1.5

Q19. (a) Write an XML Schema (XSD) to define a notebook structure with a <note> element containing <title>, <content>, and an attribute date. **5 2 2**

Rubric	Marks
Correct schema definition structure	2
Proper data type usage for elements and attributes	2
Well-formed XML Schema syntax	1

(OR)

(b) Analyze the advantages of using XML Schema over DTD and explain a scenario where XML Schema is preferable.

Rubric	Marks
Two advantages of XML Schema over DTD	2
Two reasons why XML Schema is preferable in certain cases:	2
Justification with an example scenario	1

Section 5 (Answer any 2 question(s))

Marks CO BL

Q20. Describe how the <xsl:for-each> loop works in XSLT and give an example that loops over a list of nodes. **5 4 4**

Rubric	Marks
Definition of <xsl:for-each>	2
Example of Use	1
Explanation of Example	1
Clarity & Organization	1

Q21. How does <xsl:if> work in XSLT? Write an example where it is used to display elements based on a condition. **5 3 3**

Rubric	Marks
Definition of <xsl:if>	1
Example of Use	1
Explanation of Example	2
Use Case Justification	1

Q22. Analyze the structure of an XSL document and explain how templates contribute to the separation of content and presentation. Provide an XSLT snippet that demonstrates this principle. **5 4 4**

Rubric	Marks
Clearly explains XSL structure, including key components (e.g., <xsl:stylesheet>, <xsl:template>).	1.5
Clearly explains how <xsl:template> enables separation of concerns.	2
Provides a correct, well-structured example demonstrating template usage. i.e XSLT Code Snippet	1.5

Section 6 (Answer any 2 question(s))

Marks CO BL

Q23. Compare ancestor:: and preceding-sibling:: axes. **5 4 4**

Rubric	Marks
Definition & Explanation	1
Examples & XML Structure	1
Comparison & Differences	3

Q24. Justify why a particular XPath query is more efficient. **5 5 5**

Rubric	Marks
Clarity of Explanation	1
Correctly applies XPath functions (//, @, *, text(), etc.) to demonstrate efficiency.	3
Effectively compares multiple XPath queries, highlighting efficiency trade-offs.	1

Q25. Define XPath and give a simple example. **5 2 1**

Rubric	Marks
Clearly defines XPath with accurate details on its purpose and functionality.	2.5
Explains why XPath is used in XML document processing, including real-world applications.	2.5

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