

Department of Computer Science & Engineering
Motilal Nehru National Institute of Technology Allahabad
M.C.A. II Semester

End Semester Examination 2017-18

Subject Code/Name: CA3203/XML Applications

Duration: 3 hours

Max. Marks: 60

NOTE: All questions are compulsory and carry equal marks. Be specific and to the point in your answers. Make assumptions wherever necessary and quote it.

- 1 a) Write a program in javascript which takes a string as input and returns the reverse of it. An example is shown below. (4)

Input: "javascript is scripting language"
Output: "language scripting is javascript"

- b) Write any three ways to create an object in javascript. (2)

- 2 a) Create a HTML page which prints a paragraph describing the description of a text book; including the title of the book and its author names. Here names and titles should be with underline and adjectives should be bold & italicized. (2)

- b) Create a HTML page having a link both at the top and bottom of it. While clicking on top link it should jump to the bottom of the page. Similarly it should jump to top when clicked on bottom link. (2)

- c) Write an html code to display the following table. (2)

Cell 1	Cell 2		
Cell 3	Cell 4	Cell 5	
Cell 7	Cell 8	Cell 9	Cell 6

- 3 a) Print a paragraph with the following text formats using CSS. (1)

- i. The spaces between the letters are 5px. (1)
- ii. The spaces between words are 20px. (1)
- iii. Each word is capitalized. (1)
- iv. Font size is 15px and family is Georgia. (1)

- b) Describe various types of transformations used in CSS with their proper syntaxes. (2)

- 4 a) What are the differences between tree-based API and event-based API? (2)

- b) Apply DOM Parser on following xml file. (4)

```
<book_purchase>
<book category="MCA"><title>xml application</title><price>200</price></book>
<book category="CSE"><title>java application</title><price>300</price></book>
<book category="CSE"><title>web application</title><price>500</price></book>
</book_purchase>
```

Answer the following questions based on the above XML document.

- i. Calculate total prices of the books?
- ii. Find the title of books whose prices are greater than 350?
- iii. Find the title of books whose categories are under CSE?

- 5 a) Write a DTD and XML document which satisfies the following requirements: (4)

- The root element *bank* has three sub elements: *accounts*, *customers* and *customer_accounts*.
- There are two sub elements of *accounts*: *checking_accounts* and *saving_accounts*.
- *checking_accounts* and *saving_accounts* contains any numbers of *checking_account* and *saving_account* respectively. An attribute *id* which value is unique must be included in both *saving_account* and *checking_account*.
- *saving_account* and *checking_account* has an element *balance* which is text data.
- The *customers* element contain any numbers of *customer* elements.
- The *customer* must have an attribute *id* which is unique.
- *customer* has two sub element *name* and *address* containing text data.
- *customer_accounts* contain any number of *customer_account* which must have two attributes *c_id* refers to *customer* element and *ac_id* refers to *checking_account* or *saving_account*.

(P.T.O)

- b) As we all know there are two modes of XML, well-formed XML and Valid XML. A valid XML must have a valid DTD. What is the difference between a well-formed XML and a valid XML in context of data transfer? (2)
- 6 Create a schema for the following document and then add a reference to the XML document. XML schema should satisfy the following requirements. (6)
- The root element *books* should have one or more *book* entries (minimum of one).
 - Each *book* must contain the following elements in sequence: *title*, *edition*, *author* (one or more), *publishedDate*, *type*, and *price*.
 - Each *book* contains an *isbn* number as an ID and is required.
 - title* can contain any characters (type of string).
 - title* has a *type* attribute that can contain only the values "P" and "H".
 - edition* is an optional element, and must contain only numbers that would never use more than one byte of storage.
 - There may be one or more authors (a minimum of one author) for each book. Each *author* must have the following child elements: *first*, *middle*, and *last*. The elements must be in the order *first*, *middle* and *last*, but *middle* is an optional element. *first*, *middle* and *last* are all string types, but *middle* should be at most one character long.
 - The *publishedDate* month element is defined as a type of *unsignedByte* with a minimum inclusive value of 1 and a maximum value of 12. The *publishedDate* day element is defined as a type of *unsignedByte* with a minimum inclusive value of 1 and a maximum value of 31. The *publishedDate* year element is defined as a type of *gYear*.
 - The *type* element is a string and must be either a *nonfiction* or *fiction* to be valid.
 - The *price* element is defined as a type of decimal with only three characters to the left of the decimal point and two to the right. The amount must be greater than zero.
- 7
- a) `<AAA><BBB id = "b1"/><BBB id = "b2"/><BBB name = "bbb"/><BBB/></AAA>` (1.5)
Write the XPath expression to select BBB elements without an attribute. +
- b) `<AAA><BBB/><CCC/><DDD/><CCC/></DDD><EEE/></AAA>` 1.5
Write the XPath expression to select all elements CCC and BBB. +
- c) `<AAA><Q/><SSSS/><BB/><CCC/><DDDDDDDD/><EEEE/></AAA>` 1.5
Write the XPath expression to select elements with three-letter name. +
- d) `<AAA><CCC><BBB/><BBB/><BBB/></CCC><DDD><BBB/><BBB/></DDD><EEE>` 1.5
`<CCC/><DDD/></EEE></AAA>`
Write the XPath expression to select elements which have two children BBB.
- 8
- a) `<employees>`
`<employee id="101"><emp_name>xyz</emp_name><emp_add>AAA</emp_add></employee>` (4)
`<employee id="102"><emp_name>abc</emp_name><emp_add>BBB</emp_add></employee>`
`<employee id="103"><emp_name>pqr</emp_name><emp_add>CCC</emp_add></employee>`
`</employees>`
Create a style sheet for the above xml document such that it displays the list of employee's data in alphabetical order according to their name.
- b) How to place a Choose Condition (multiple conditional tests against xml file) in an XSL file. (2)
Describe with an example.
- 9
- a) How to use XLink to create links in an XML document with XPointer? Explain with an example. (3)
- b) If a name is in both child and parent element's namespace, then when you use this name without namespace prefix, which namespace does it belong to? Explain the reasoning along with the advantages of XML namespaces? (3)
- 10
- a) Write a simple example to put RDF in a HTML file and also list down its objectives and advantages in detail. (3)
- b) What are the limitations of RDF in describing metadata? Can XML be used instead of RDF? (3)