

Bachelor of Information Technology
3rd year, 1st Semester Examination, 2018

Subject: Web Technology - I

Time - Three Hours

Full Marks – 100

Answer question 1 and any 5 (five) questions from the rest.

1. Answer all the questions.

10x2=20

- a) Write the benefits of XML.
- b) Write the function of “reset” button in <form> element.
- c) Identify the different parts of the following URL.
`http://www.it.jusl.ac.in:8765/result.jsp?name=student&sort=byMarks`
- d) For HTTP URL, the protocol is “http”. Mention the name of two other possible protocols.
- e) Explain the notion of persistent HTTP connection.
- f) What are the basic differences between HTTP and HTTPS?
- g) Write the usage of hidden field in an HTML document.
- h) What is the purpose of <noscript> tag?
- i) What are *safe* and *unsafe* methods in HTTP? Name two methods of each category.
- j) How does *sequence* indicator differ from *all* indicator in schema?

2.

[4+6+6]

- a) Compare CSS and XSL. Show how styling in XML is done with CSS.
- b) Discuss differences between GET and POST methods of HTTP protocol.
- c) Write a HTML documents to display the current date and time on the status bar.

3.

[4+6+6]

- a) Compare XML with HTML.
- b) Describe the role of XML Namespaces.
- c) Write with examples the usage of ‘for-in’ construct in JavaScript?

4.

[4+6+6]

- a) Compare DTD with Schema.
- b) What benefits does an external style sheet bring? How do you refer an external CSS file from a HTML page?
- c) Write a minimal HTML page *home.html* as follows: It observes if the user is idle for more than 1 minute and if so it redirects another page *logout.html*.

5.

[4+6+6]

- a) What are the roles of XML in Web development?
- b) Write an XML document to store emails. Also write a schema for it.
- c) The age of an employee is a positive integer and less than 128. Create a data type for it in schema.

6.

[4+6+6]

- a) Suggest some strengths and weaknesses of the relational approach compared to XML.
- b) List data types used in XML Schema.
- c) Consider the following element `<population>` which must have a year attribute. Create a data type for this element. Note that the element content is a non-negative integer.
`<population year="2009" unit="million">100</population>`

7.

[4+6+6]

- a) What is the difference between XQuery and XPath?
- b) Design a DTD for the following XML document.

```
<restaurants>
  <restaurant name="La Pasteria">
    <address>13 Alonissou Street, Patras, 261 35</address>
    <cuisine>Italian</cuisine>
    <phoneno>2610325833</phoneno>
  </restaurant>
  ...
</restaurants>
```

- c) Write path expressions to extract the following textual information from any XML document.
 - i) Retrieve the addresses of all restaurants.
 - ii) Retrieve the names of all restaurants.
 - iii) Retrieve the telephone numbers of all restaurants serving Indian food.

8.

[4+6+6]

- a) What do you mean by XQuery FLWOR?
- b) Demonstrate with examples the sequence Operators used in XQuery.
- c) Consider the following XML document (HDD.xml) snippet:

```
<?xml version='1.0'?>
<store>
  <HDD type='ATA'>
    <make>Samsung</make>
    <capacity>80</capacity>
    <speed>7200</speed>
    <price>1600</price>
  </HDD>
  ...
</store>
```

Write xqQUERY expressions to extract the following textual information from the above XML document.

- i) Find manufacturers that manufacture 160 GB HDD
- ii) Sort HDDs by their prices.

9.

[4+6+6]

- a) What is selecting and filtering element in XQuery?
- b) How do you create a named template? How do you call it?
- c) Write a named template that takes two integer parameters and returns their sum.