

INDIAN STATISTICAL INSTITUTE BANGALORE CENTRE
Documentation Research and Training Centre

M.S. in Library and Information Science
Semester IV, Final Exam (AY 2024-25)

Paper 17: Web Based Information Systems and Services

Date: 21st Apr 2025

Max. Marks: 100
Duration: 3 hours

Answer any 5 questions. All questions carry equal marks.

1. Explain purpose of XML Schema and XML DTD along with their differences.
2. Discuss importance of data serialization and explain major data serialization formats.
3. How well-formed and valid XML documents differ? Also write DTD for which the following XML document will be valid:

```
<?xml version="1.0" encoding="UTF-8"?>
<recipeBook collection="Desserts">
  <recipe id="R001" difficulty="Easy">
    <title>Classic Cookies</title>
    <prepTime unit="minutes">15</prepTime>
    <cookTime unit="minutes">10</cookTime>
    <ingredients>
      <ingredient quantity="2.25" unit="cup">Flour</ingredient>
      <ingredient quantity="1" unit="tsp">Baking Soda</ingredient>
      <ingredient quantity="2">Large Eggs</ingredient>
    </ingredients>
    <steps>
      <step>Preheat oven.</step>
      <step>Combine ingredients.</step>
      <step>Bake until golden brown.</step>
    </steps>
  </recipe>
</recipeBook>
```

4. Write an XML file to represent the following data about electronic products. Also, write an applicable DTD or XML Schema definition that validates the structure of your XML file.

ProductID	Name	Category	Price (\$)	Stock	Supplier
E1001	Smart LED TV	Television	799.99	35	VisionElec
E1002	Wireless Keyboard	Accessories	75.5	150	KeyMasters
E1003	Gaming Laptop	Computer	1450	20	CompCore

5. Describe the usage of the OAI-PMH protocol, including required parameters for each verb and selective harvesting.
6. Discuss usage of TF-IDF algorithm in relevance ranking.