**NCP ASSIGNMENT**

Name: Akash G

Roll Number: CB.EN.U4CSE17105

Q1)

**DTD**

<?xml encoding="UTF-8"?>

<!ELEMENT student (Name,id,study)>

<!ATTLIST student

xmlns CDATA #FIXED ''>

<!ELEMENT Name (#PCDATA)>

<!ATTLIST Name

xmlns CDATA #FIXED ''>

<!ELEMENT id (#PCDATA)>

<!ATTLIST id

xmlns CDATA #FIXED ''>

<!ELEMENT study (courses)>

<!ATTLIST study

xmlns CDATA #FIXED ''>

<!ELEMENT courses (course)+>

<!ATTLIST courses

xmlns CDATA #FIXED ''

year CDATA #REQUIRED>

<!ELEMENT course (name,shortform,report?)>

<!ATTLIST course

xmlns CDATA #FIXED ''>

<!ELEMENT name (#PCDATA)>

<!ATTLIST name

xmlns CDATA #FIXED ''>

<!ELEMENT shortform (#PCDATA)>

<!ATTLIST shortform

xmlns CDATA #FIXED ''>

<!ELEMENT report (grade,date)>

<!ATTLIST report

xmlns CDATA #FIXED ''>

<!ELEMENT grade (#PCDATA)>

<!ATTLIST grade

xmlns CDATA #FIXED ''>

<!ELEMENT date (#PCDATA)>

<!ATTLIST date

xmlns CDATA #FIXED ''>

**Q2)**

**Schema**

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">

<xs:element name="student">

<xs:complexType>

<xs:sequence>

<xs:element ref="Name"/>

<xs:element ref="id"/>

<xs:element ref="study"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="Name" type="xs:NCName"/>

<xs:element name="id" type="xs:integer"/>

<xs:element name="study">

<xs:complexType>

<xs:sequence>

<xs:element ref="courses"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="courses">

<xs:complexType>

<xs:sequence>

<xs:element maxOccurs="unbounded" ref="course"/>

</xs:sequence>

<xs:attribute name="year" use="required" type="xs:integer"/>

</xs:complexType>

</xs:element>

<xs:element name="course">

<xs:complexType>

<xs:sequence>

<xs:element ref="name"/>

<xs:element ref="shortform"/>

<xs:element minOccurs="0" ref="report"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="name" type="xs:string"/>

<xs:element name="shortform" type="xs:NCName"/>

<xs:element name="report">

<xs:complexType>

<xs:sequence>

<xs:element ref="grade"/>

<xs:element ref="date"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="grade" type="xs:string"/>

<xs:element name="date" type="xs:NMTOKEN"/>

</xs:schema>

Q2)

**DTD**

<?xml encoding="UTF-8"?>

<!ELEMENT email (from,to,content)>

<!ATTLIST email

xmlns CDATA #FIXED ''>

<!ELEMENT from (#PCDATA)>

<!ATTLIST from

xmlns CDATA #FIXED ''>

<!ELEMENT to (#PCDATA)>

<!ATTLIST to

xmlns CDATA #FIXED ''>

<!ELEMENT content (exercises,person)>

<!ATTLIST content

xmlns CDATA #FIXED ''>

<!ELEMENT exercises (exercise)+>

<!ATTLIST exercises

xmlns CDATA #FIXED ''>

<!ELEMENT person (#PCDATA)>

<!ATTLIST person

xmlns CDATA #FIXED ''>

<!ELEMENT exercise (topic,description)>

<!ATTLIST exercise

xmlns CDATA #FIXED ''>

<!ELEMENT topic (#PCDATA)>

<!ATTLIST topic

xmlns CDATA #FIXED ''>

<!ELEMENT description (#PCDATA)>

<!ATTLIST description

xmlns CDATA #FIXED ''>

**Q2)**

**Schema**

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">

<xs:element name="email">

<xs:complexType>

<xs:sequence>

<xs:element ref="from"/>

<xs:element ref="to"/>

<xs:element ref="content"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="from" type="xs:string"/>

<xs:element name="to" type="xs:string"/>

<xs:element name="content">

<xs:complexType mixed="true">

<xs:choice minOccurs="0" maxOccurs="unbounded">

<xs:element ref="exercises"/>

<xs:element ref="person"/>

</xs:choice>

</xs:complexType>

</xs:element>

<xs:element name="exercises">

<xs:complexType>

<xs:sequence>

<xs:element maxOccurs="unbounded" ref="exercise"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="exercise">

<xs:complexType>

<xs:sequence>

<xs:element ref="topic"/>

<xs:element ref="description"/>

</xs:sequence>

</xs:complexType>

</xs:element>

<xs:element name="topic" type="xs:NCName"/>

<xs:element name="description" type="xs:string"/>

<xs:element name="person" type="xs:NCName"/>

</xs:schema>