Solution Exercise– 5

Q1: A possible schema can be:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:element name="movies">
           <xs:complexType>
               <xs:sequence>
                    <xs:element ref="Movie" maxOccurs="unbounded"/>
               </xs:sequence>
            </xs:complexType>
        </xs:element>
      <xs:element name="Movie">
           <xs:complexType>
              <xs:sequence>
                <xs:element name="title" type="xs:string"/>
                <xs:element name="year" type="xs:nonNegativeInteger"/>
                <xs:element name="_director">
                    <xs:complexType>
                        <xs:simpleContent>
                           <xs:extension base="xs:string">
                              <xs:attribute name="name" type="xs:string"/>
                            </xs:extension>
                         </xs:simpleContent>
                       </xs:complexType>
                  </xs:element>
```

```
                    <xs:choice minOccurs="1" maxOccurs="unbounded">
                        <xs:element name="comment">
                            <xs:complexType>
                                <xs:simpleContent>
                                    <xs:extension base="xs:string">
                                        <xs:attribute name="lang" type="xs:string"/>
                                    </xs:extension>
                                </xs:simpleContent>
                            </xs:complexType>
                        </xs:element>
                        <xs:element name="newcomment" type="xs:string"/>
                    </xs:choice>
                </xs:sequence>
                <xs:attribute name="id" type="xs:ID"/>
            </xs:complexType>
        </xs:element>
    </xs:schema>
```

Q2: a) Is the following type definition is valid for schema? Why or why not?

```
<complexType name="listitem">
      <sequence>
            <all>
                  <element name="title"></element>
                  <element name="created" type="dateTime"</element>
                  <element name="createdby"></element>
                  <element name="dueTo" type="date"></element>
            </all>
            <sequence minOccurs="0" maxOccurs="unbounded">
                  <element name="refer" type="anyURI"></element>
            </sequence>
      </sequence>
      <attribute name="id" type="anyURI"></attribute>
</complexType>
```

b) Is the following element declaration is valid for the purpose of the Unique Particle Attribution? Why not?

```
<xs:element name="names">
      <xs:choice maxOccurs="unbounded">
            <xs:element ref="first-name" />
            <xs:sequence>
                  <xs:element ref="first-name" minOccurs="0" />
                  <xs:element ref="middle-name" minOccurs="0" />
                  <xs:element ref="last-name" />
            </xs:sequence>
      </xs:choice>
</xs:element>
```

For Example, A Simple UPA Violation is:

```
<xs:complexType name="bad1">
  <xs:sequence>
    <xs:choice>
      <xs:element name="A" type="xs:string" minOccurs="0" />
      <xs:element name="B" type="xs:string" minOccurs="0" />
    </xs:choice>
    <xs:choice>
      <xs:element name="A" type="xs:string" minOccurs="0" />
      <xs:element name="C" type="xs:string" minOccurs="0" />
    </xs:choice>
  </xs:sequence>
</xs:complexType>
```

c)

```
<xs:element name="names">
      <xs:choice maxOccurs="unbounded">
            ~~<xs:element ref="first-name" />~~
            <xs:sequence>
                  <xs:element ref="first-name" minOccurs="0" />
                  <xs:element ref="middle-name" minOccurs="0" />
                  <xs:element ref="last-name" minOccurs="0" />
            </xs:sequence>
      </xs:choice>
</xs:element>
```