

Problem	1	Total
Points:	30	30
Score:		

This homework assignment has 1 problems, for a total of 30 points.

Listing 1: Unique songs nested in unique singers with genre as an attribute

```
<Songs>
  <Sgr name="Eagles">
    <Song genre="rock" lg="en">Hotel California</Song>
  </Sgr>
  <Sgr name="H_Belafonte">
    <Song genre="folk" lg="cpe">Day O</Song>
    <Song genre="calypso" lg="en">Jamaica Farewell</Song>
  </Sgr>
  <Sgr name="J_Prasad">
    <Song genre="folk" lg="pa">Mera Dil Darda</Song>
  </Sgr>
</Songs>
```

Listing 2: Singers nested within songs grouped by genre

```
<Songs>
  <rock>
    <Song lg="en">Hotel California<Sgr name="Eagles"/>
  </rock>
  <folk>
    <Song lg="cpe">Day O<Sgr name="H_Belafonte"/>
    <Song lg="pa">Mera Dil Darda<Sgr name="J_Prasad"/>
  </folk>
  <calypso>
    <Song lg="en">Jamaica Farewell<Sgr name="H_Belafonte"/>
  </calypso>
</Songs>
```

1. Mark the appropriate choices to complete the following XQuery listing to transform Listing 1 into Listing 2.

```
declare function local:createGenres($root)
{
  element { name($root) } {
    for $genre in ----- (: PART (a) :)
    return
      element { $genre } {
        for $song in ----- (: PART (b) :)
        return
```

```

element { name($song) } {
  attribute lg { $song/@lg },
  $song/text(),
  element { name($song/..) } {
    attribute { "name" } {
      ----- (: PART (c) :)
    }
  }
}
}
}
}
};

local:createGenres (doc("singer-song-genre.xml")/Songs)

```

(a) (10 points) The variable \$genre should range over the following expression

A. \$root // @genre [1]

B. distinct-values(\$root // distinct-values(@genre))

C. \$root // distinct-values(@genre)

D. \$root // @genre

(b) (10 points) The variable \$song should range over the following expression

E. \$root // Song [@genre]

F. \$root // Song [@genre=\$genre] ["folk"]

G. \$root // Song [\$genre]

H. .// @genre [.= \$genre] / ..

(c) (10 points) The body of the attribute constructor should be

I. \$song / ancestor :: ** [.= \$song] / @name

J. \$song / parent :: ** [.= \$song] / @name

K. \$song / preceding :: * / @name

L. \$song / ancestor :: ** [* = \$song] / @name