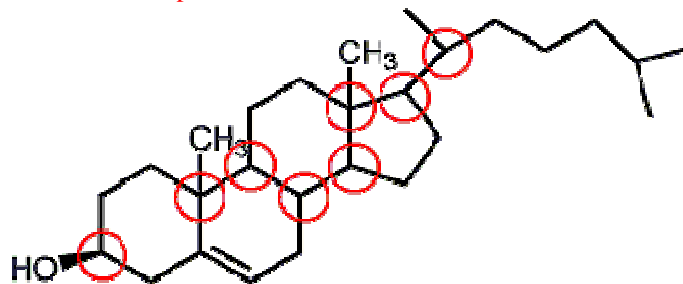


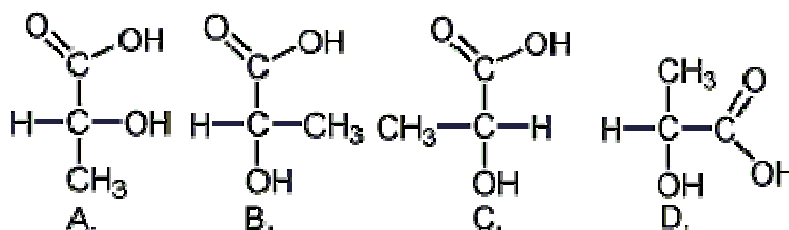
Grade 10 of 10 points

Points

- (4) 1. Following is the structure of **cholesterol**, an important cell membrane component, a precursor to steroid hormones, and the culprit in atherosclerosis. **Circle all the chiral carbon atoms** in the cholesterol molecule. *0.5 pt each correct center, -0.5 each incorrect center*



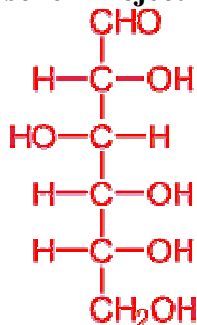
- (3) 2. Following are different Fischer projection formulas of lactic acid. Indicate the relationship between the structure pairs—whether they represent **enantiomers** or **the same compound**.
1 pt each



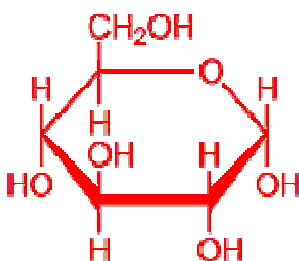
- (a) Structures A and B enantiomer
- (b) Structures A and C same compound
- (c) Structures A and D same compound
- (3) 3. Draw the structure of D-glucose in (a) the open chain Fischer projection and (b) the alpha-D-pyranose Haworth projection. Then show the correct chair conformation of the alpha-D-glucopyranose structure by filling in the H's and OH's on the skeleton structure.

1 pt each--0.5 pt if beta instead of alpha is shown.

Fischer Projection



Haworth Structure



Chair Structure

