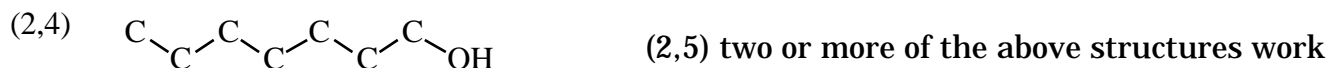
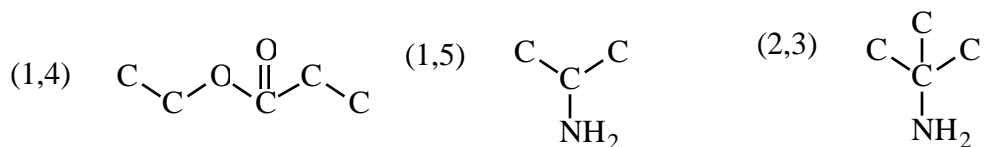
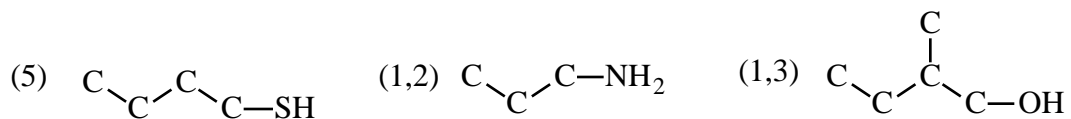
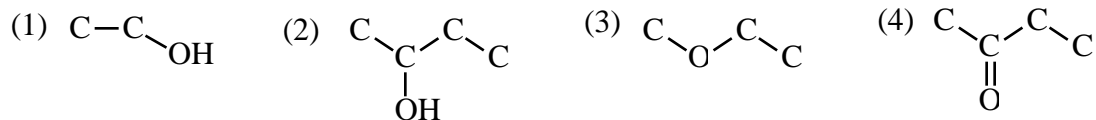


Name: \_\_\_\_\_

### Organic Compounds Test #3.1

#### Multiple Choice:

Questions 1-14 pertain to the following structures. (Note: Where carbon does not have its required number of bonds, it is understood that the "missing" bonds go to hydrogen.)

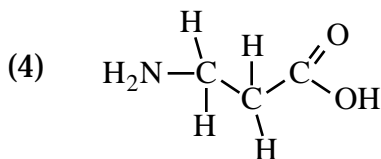
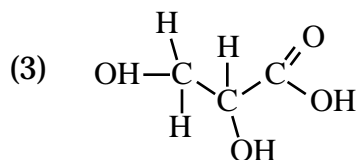
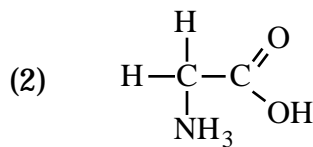
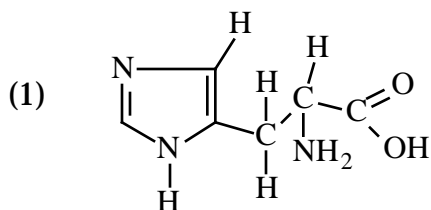


(3,4) none of the above structures are correct

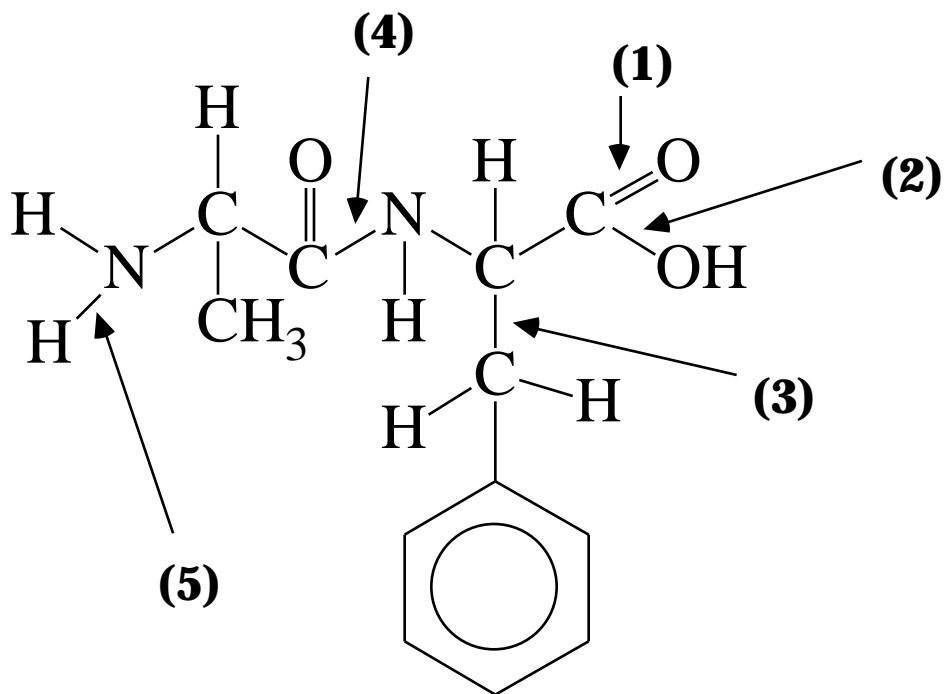
- \_\_\_ 1. Which of the above is an example of a compound that would be produced by mild oxidation of a secondary alcohol?
- \_\_\_ 2. Is an organic acid?
- \_\_\_ 3. This structure is an example of a secondary alcohol?
- \_\_\_ 4. This structure is an example of an ester?
- \_\_\_ 5. This structure is an example of a thio or mercaptan?
- \_\_\_ 6. This structure is an example of a tertiary amine.
- \_\_\_ 7. The structure of ethyl propanoate.
- \_\_\_ 8. The structure of propyl ethanoate.

- \_\_\_ 9. The structure of 2 butanone.
- \_\_\_ 10. 2 propanone which is also known as acetone.
- \_\_\_ 11. The structure of a primary alcohol
- \_\_\_ 12. This structure could produce an amine if treated with  $H_2$ ,  $NH_3$ , and heated.
- \_\_\_ 13. The structure of an aldehyde.
- \_\_\_ 14. Used to make diethyl ether.
- \_\_\_ 15. Which of the following is possible? (1) secondary ketone; (2) secondary aldehyde; (3) tertiary ketone; (4) secondary acid; (5) 1,2 and 3; (6) 2,3 and 4; (7) all of the above.
- \_\_\_ 16. In one of the laboratory investigations we took a look at the basic properties of alcohols. Based on our observations in that laboratory investigation, which of the following alcohols will react the fastest with HCl? (1) 1-pentanol; (2) 2-pentanol; (3) 1-butanol; (4) 2-butanol; (5) 2 methyl 3 pentanol; (1,2) 2 methyl, 2-pentanol.
- \_\_\_ 17. In the laboratory exercise on the properties and reactions of alcohols it was found that hot copper oxide would oxidize an alcohol. The alcohol we oxidized with hot copper oxide was methanol. What product would have been obtained if ethanol had been used in place of methanol? (1) ethanoate; (2) ethanal; (3) ethanoic acid; (4) ethanolamine; (5) none of the above.
- \_\_\_ 18. The rules for naming a ketone state that you are to name it as if it were derived from a hydrocarbon by dropping the final 'e' and adding (1) al; (2) ol; (3) one; (4) ous; (5) none of the above.
- \_\_\_ 19. Alkanes can be oxidized to alkenes with strong heating and a catalyst. This reaction is known as (1) hydrogenation; (2) dehydrogenation; (3) alkanation; (4) bromination; (5) none of the above.
- \_\_\_ 20. A test commonly used to detect an aldehyde is (1) Fehling's test; (2) Benedict's test; (3) Wagner's test; (4) both 1 and 2; (5) both 2 and 3; (1,2) none of the above.
- \_\_\_ 21. Carbohydrates are monomers and polymers of aldehydes and ketones. They also contain the functional group of (1) alcohols; (2) esters; (3) amines; (4) acids.
- \_\_\_ 22. The difference between fats and oils from a chemist's point of view is that (1) fats are usually unsaturated and oils are usually saturated; (2) oils are usually unsaturated and fats are usually saturated; (3) fats are polymers and oils are not; (4) oils are polymers and fats are not.
- \_\_\_ 23. Fats, oils, and waxes are (1) alcohols; (2) acids; (3) aldehydes; (4) ketones; (5) ethers; (1,2) amines; (1,3) esters.

\_\_\_ 24. Which of the following structures illustrates an amino acid that might be important biologically, that is, be incorporated into proteins.



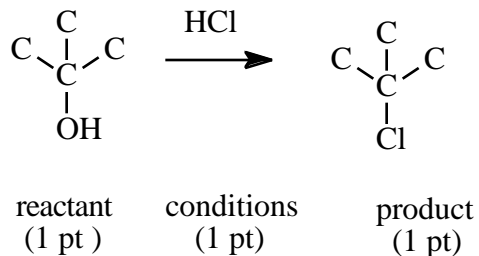
\_\_\_ 25. Which of the following bonds would indicate a peptide bond?



Short Answer

1. Show how to produce each of the following compounds. Each of these questions is worth three points--one point for the correct structure of the reactant, one point for the correct structure of the product, and one point for the proper conditions and/or inorganic reactants if any are required. The proper format is illustrated in the sample problem.

(sample) show how to produce 2 methyl 2 chloro propane



a) propanoic acid

b) propyl ethyl ether

e) ethyl propanoate

Extra Credit

What is the following?

