Carboxylic Acid Questions Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ # \_\_\_\_\_

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Top of Form

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| The correct structure for potassium benzoate would be:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img442.png |

|  |  |  |
| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img443.png |

|  |  |  |
| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img444.png |

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| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img445.png |

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| **2.** |

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| The pH of an aqueous solution of acetic acid (vinegar) would be:

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| --- | --- | --- |
|  | a. | 7 |

|  |  |  |
| --- | --- | --- |
|  | b. | less than 7 |

|  |  |  |
| --- | --- | --- |
|  | c. | greater than 7 |

|  |  |  |
| --- | --- | --- |
|  | d. | 14 |

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| **3.** |

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| Which of the following is considered to be a fatty acid?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img446.png |

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|  | b. | /ilrn/books/beinl8/images/img447.png |

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| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img448.png |

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| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img449.png |

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| **4.** |

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| Pictured below is methanoic acid. What is the common name for this carboxylic acid? /ilrn/books/beinl8/images/img450.png

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| --- | --- | --- |
|  | a. | methic acid |

|  |  |  |
| --- | --- | --- |
|  | b. | acetic acid |

|  |  |  |
| --- | --- | --- |
|  | c. | formic acid |

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| --- | --- | --- |
|  | d. | carbonic acid |

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| **5.** |

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| What is the IUPAC name for the following molecule? /ilrn/books/beinl8/images/img451.png

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| --- | --- | --- |
|  | a. | *o*-chlorobenzoic acid |

|  |  |  |
| --- | --- | --- |
|  | b. | *m*-chlorobenzoic acid |

|  |  |  |
| --- | --- | --- |
|  | c. | *p*-chlorobenzoic acid |

|  |  |  |
| --- | --- | --- |
|  | d. | carboxychlorobenzene |

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| **6.** |

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| Predict the product from the reaction shown below. /ilrn/books/beinl8/images/img452.png

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|  | a. | /ilrn/books/beinl8/images/img453.png |

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|  | b. | /ilrn/books/beinl8/images/img454.png |

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| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img455.png |

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|  | d. | /ilrn/books/beinl8/images/img456.png |

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| **7.** |

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| Which of the following carboxylic acids is the most soluble in water?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img457.png |

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| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img458.png |

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| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img459.png |

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| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img460.png |

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| **8.** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Which of the carboxylic acids listed would be used to make polyethylene terephthalate (PET)? /ilrn/books/beinl8/images/img461.png

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img462.png |

|  |  |  |
| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img463.png |

|  |  |  |
| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img464.png |

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| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img465.png |

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| **9.** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Which of the following is the most soluble in water?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img466.png |

|  |  |  |
| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img467.png |

|  |  |  |
| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img468.png |

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| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img469.png |

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| **10.** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Which of the molecules shown below is a carboxylic acid?

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img470.png |

|  |  |  |
| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img471.png |

|  |  |  |
| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img472.png |

|  |  |  |
| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img473.png |

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| **11.** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Shown below is acetic acid. This would be classified as: /ilrn/books/beinl8/images/img474.pngAcetic Acid

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | a monoprotic acid |

|  |  |  |
| --- | --- | --- |
|  | b. | a diprotic acid |

|  |  |  |
| --- | --- | --- |
|  | c. | a triprotic acid |

|  |  |  |
| --- | --- | --- |
|  | d. | a tetraprotic acid |

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| **12.** |

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| In the ionization of acetic acid in water, the conjugate base would be: /ilrn/books/beinl8/images/img475.png

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | CH3CO2H |

|  |  |  |
| --- | --- | --- |
|  | b. | H2O |

|  |  |  |
| --- | --- | --- |
|  | c. | CH3CO2- |

|  |  |  |
| --- | --- | --- |
|  | d. | H3O+ |

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| **13.** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Carboxylic acids can be prepared by the oxidation of which class of alcohols?

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | quaternary |

|  |  |  |
| --- | --- | --- |
|  | b. | tertiary |

|  |  |  |
| --- | --- | --- |
|  | c. | secondary |

|  |  |  |
| --- | --- | --- |
|  | d. | primary |

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| **14.** |

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| The IUPAC name for the compound below would be: /ilrn/books/beinl8/images/img476.png

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | 4-bromo-2-chlorobenzoic acid |

|  |  |  |
| --- | --- | --- |
|  | b. | *o-*chloro-*p-*bromobenzoic acid |

|  |  |  |
| --- | --- | --- |
|  | c. | 1-bromo-3-chlorobenzoic acid |

|  |  |  |
| --- | --- | --- |
|  | d. | 1-chloro-5-bromobenzoic acid |

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| **15.** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Which of the molecules below is a structural isomer of propanoic acid? /ilrn/books/beinl8/images/img477.png

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img478.png |

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| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img479.png |

|  |  |  |
| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img480.png |

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| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img481.png |

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| **16.** |

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| The final product of the reaction below would be: /ilrn/books/beinl8/images/img482.png

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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img483.png |

|  |  |  |
| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img484.png |

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| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img485.png |

|  |  |  |
| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img486.png |

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| **17.** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Which of the following carboxylic acids would be least soluble in water?

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img487.png |

|  |  |  |
| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img488.png |

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|  | c. | /ilrn/books/beinl8/images/img489.png |

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|  | d. | /ilrn/books/beinl8/images/img490.png |

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| **18.** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| The reaction between acetic acid and sodium hydroxide would produce: /ilrn/books/beinl8/images/img491.png

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| --- | --- | --- |
|  | a. | NaCl and H2O |

|  |  |  |
| --- | --- | --- |
|  | b. | Nothing, acetic acid and sodium hydroxide do not react. |

|  |  |  |
| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img492.png |

|  |  |  |
| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img493.png |

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| **19.** |

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| The correct structure for 2-hydroxypropanoic acid would be:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |
| --- | --- | --- |
|  | a. | /ilrn/books/beinl8/images/img494.png |

|  |  |  |
| --- | --- | --- |
|  | b. | /ilrn/books/beinl8/images/img495.png |

|  |  |  |
| --- | --- | --- |
|  | c. | /ilrn/books/beinl8/images/img496.png |

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| --- | --- | --- |
|  | d. | /ilrn/books/beinl8/images/img497.png |

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| **20.** |

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| The IUPAC name for the molecule shown below would be: /ilrn/books/beinl8/images/img498.png

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| --- | --- | --- |
|  | a. | sodium benzoic acid |

|  |  |  |
| --- | --- | --- |
|  | b. | sodium benzoate |

|  |  |  |
| --- | --- | --- |
|  | c. | potassium benzoate |

|  |  |  |
| --- | --- | --- |
|  | d. | benzoic sodium |

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Bottom of Form |

