

Assessment Items for Chemistry for Health Professionals, exported from Blackboard

1. Which of these samples are examples of elements, rather than compounds or mixtures? Check all that apply.

- *a. Au
- *b. N₂
- c. chlorine dioxide
- d. wood

2. Chlorine dioxide is an example of _____.

- a. an element
- *b. a compound
- c. a mixture

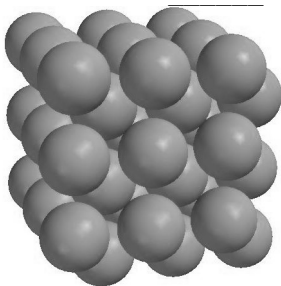
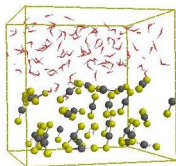
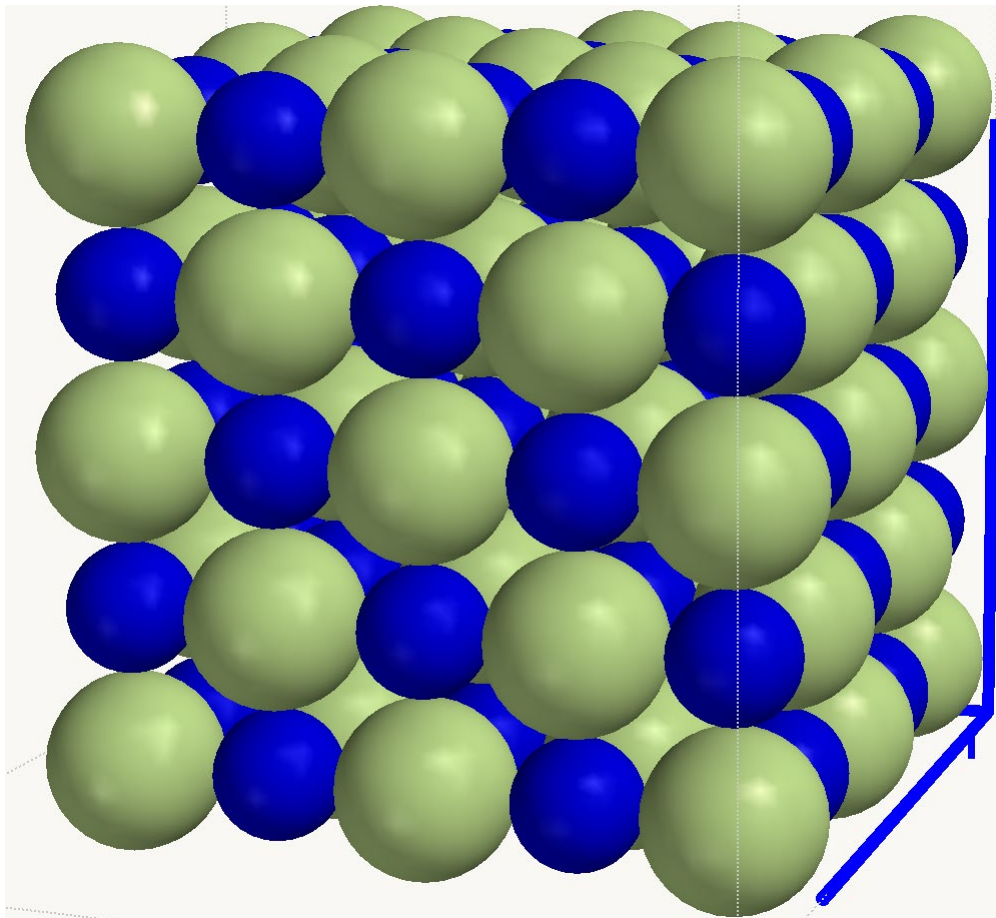
3. Wood is an example of _____.

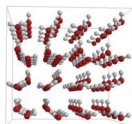
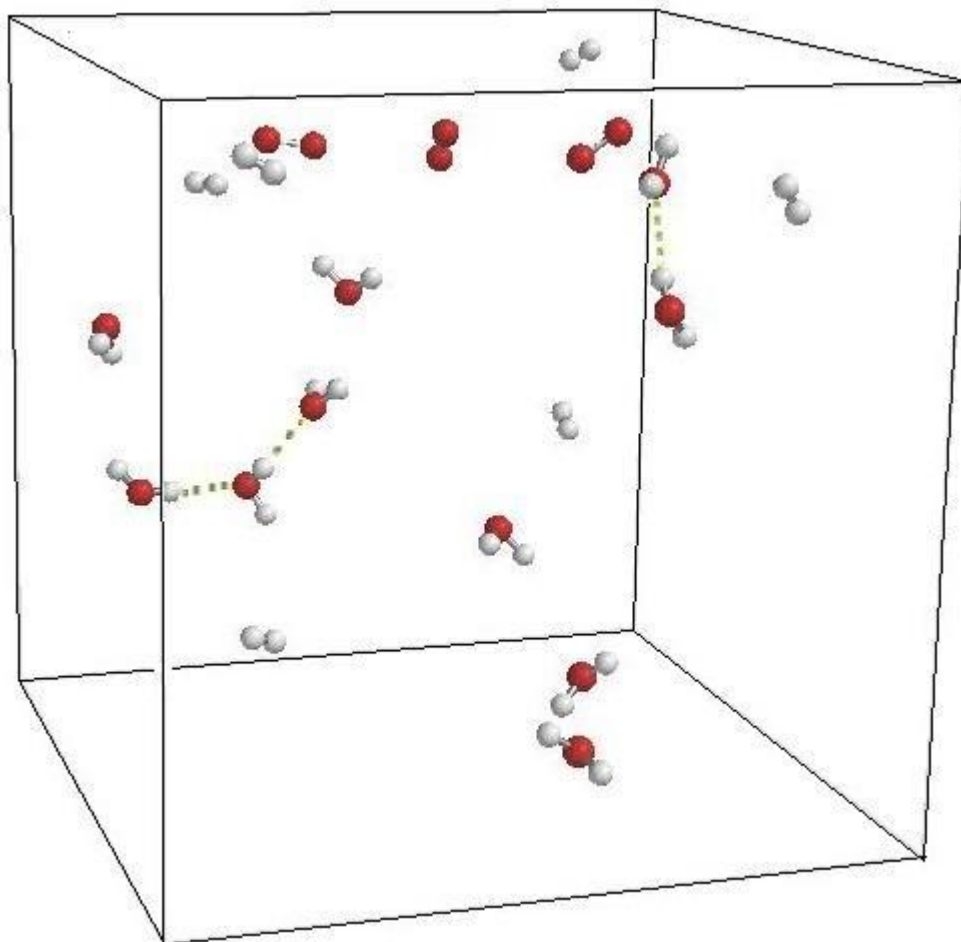
- a. an element
- b. a compound
- *c. a mixture

4. Which of these samples are examples of compounds, rather than elements or mixtures? Check all that apply.

- a. Au
- b. N₂
- *c. chlorine dioxide
- d. wood

5. Sort the following samples of matter into their appropriate categories.





- *a. Compound
- *d. Mixture
- *c. Element
- *e. Mixture
- *b. Compound

6. Sort the following samples of matter into their appropriate categories.

- *c. Compound
- *e. Mixture
- *b. Element
- *d. Mixture

*a. Compound

7. Sort the following samples of matter into their appropriate categories.

*b. Compound
*d. Mixture
*c. Element
*e. Mixture
*a. Compound

8. Sort the following samples of matter into their appropriate categories.

*e. Compound
*a. Mixture
*c. Element
*d. Mixture
*b. Compound

9. Write the names, with correct spellings, of the elements with the following symbols:

C _____
Ca _____
Cl _____
Cr _____
Cu _____

Answers:

a. carbon
b. calcium
c. chlorine
d. chromium
e. copper

10. Give the chemical symbol for each element:

Copper _____
Calcium _____
Carbon _____
Chlorine _____
Chromium _____

Answers:

- a. Cu
- b. Ca
- c. C
- d. Cl
- e. Cr

11. Match each element name with the correct symbol.

- [i] 1. Copper
- [e] 2. Chromium
- [f] 3. Carbon
- [a] 4. Calcium
- [d] 5. Chlorine

- a. Ca
- b. Ce
- c. Cs
- d. Cl
- e. Cr
- f. C
- g. Cd
- h. Co
- i. **Cu**

12. Write the names, with correct spellings, of the elements with the following symbols:

C _____
Ca _____
Cl _____
Cr _____
Cu _____

Answers:

- a. carbon
- b. calcium
- c. chlorine
- d. chromium
- e. copper

13. Write the names, with correct spellings, of the elements with the following symbols:

Ag _____
Au _____
Hg _____
Fe _____

Answers:

- a. silver
- b. gold
- c. mercury
- d. iron

14. Give the chemical symbol for each element:

Mercury _____

Gold _____

Silver _____

Iron _____

Answers:

a. Hg

b. Au

c. Ag

d. Fe

15. Match each element name with the correct symbol.

[b] 1. Iron

[g] 2. Silver

[a] 3. Gold

[f] 4. Mercury

a. Au

b. Fe

c. Si

d. Mg

e. H

f. Hg

g. Ag

h. **Ir**

16. Write the names, with correct spellings, of the elements with the following symbols:

Ag _____

Au _____

Hg _____

Fe _____

Answers:

a. silver

b. gold

c. mercury

d. iron

17. Sort these elements into the appropriate categories:

Ni _____

F _____

Na _____

Pb _____

*d. transition metal

*b. main group nonmetal

*c. main group metal

*a. main group metal

e. transition nonmetal

18. Which statement is accurate for Cl?

- *a. Cl is a main group nonmetal
- b. Cl is a main group metal
- c. Cl is a transition element and a metal
- d. Cl is a transition element and a nonmetal

19. Which of the terms below apply to the element Rh? Check all that apply.

- *a. metal
- b. nonmetal
- *c. transition element
- d. main group element

20. Sort these elements into the appropriate categories:

Ni _____
F _____
Na _____
Pb _____

- *b. transition metal
- *e. main group nonmetal
- *a. main group metal
- *c. main group metal
- d. transition nonmetal

21. Use the Periodic Table from our course to fill in the blanks:
Sulfur is in Period _____ and Group _____.

- *g. 3
- *j. 6A
- a. 1
- b. 2
- i. 4
- f. 6
- c. 1A
- d. 2A
- e. 3A
- h. 4A

22. Use the Periodic Table from our course to fill in the blanks:
Carbon is in Group _____ and Period _____.

- *c. 4A
- *b. 2
- g. 1
- e. 3
- j. 4
- a. 6

- h. 1A
- i. 2A
- f. 3A
- d. 6A

23. Use the Periodic Table from our course to fill in the blanks:
Silicon is in Group _____ and Period _____.

- *b. 4A
- *e. 3
- d. 1
- g. 2
- j. 4
- c. 6
- i. 1A
- a. 2A
- f. 3A
- h. 6A

24. Use the Periodic Table from our course to fill in the blanks:
Sulfur is in Period _____ and Group _____.

- *a. 3
- *c. 6A
- g. 1
- j. 2
- h. 4
- e. 6
- d. 1A
- i. 2A
- f. 3A
- b. 4A

25. Which of the quantities below are equal to 15 cm? Select all that apply.

- *a. 1.5 dm
- *b. 150 mm
- c. 1.5 m
- d. 1500 m
- e. 150 dm

26. Which of the quantities below are equal to 42 mL? Select all that apply.

- *a. 0.42 dL
- *b. 0.042 L
- c. 4200 dL
- d. 420 cL
- e. 42000 L

27. Which of the quantities below are equal to 0.113 L? Select all that apply.

- *a. 113 mL
- b. 11.3 dL
- c. 113 cL
- d. 0.0113 dL

28. Which of the quantities below are equal to 55 g? Select all that apply.

- *a. 55000 mg
- *b. 5500 cg
- c. 0.055 mg
- d. 5.5 dg

29. Classify each substance appropriately.

NaCl _____

COS _____

NCl₃ _____

AgF _____

CoS _____

- *c. ionic
- *b. molecular/covalent
- *d. molecular/covalent
- *e. ionic
- *a. ionic

30. Classify each substance appropriately.

NH₃ _____

COCl₂ _____

LiF _____

IBr _____

CoCl₂ _____

- *a. molecular/covalent
- *e. molecular/covalent
- *d. ionic
- *c. molecular/covalent
- *b. ionic

31. Classify each substance appropriately.

PF₃ _____

SCL₂ _____

NaBr _____

FeF₃ _____

CoO _____

- *a. molecular/covalent
- *c. molecular/covalent
- *e. ionic
- *b. ionic
- *d. ionic

32. Classify each substance appropriately.

NaCl _____

COS _____

NCl₃ _____

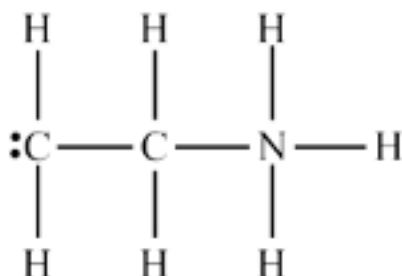
AgF _____

CoS _____

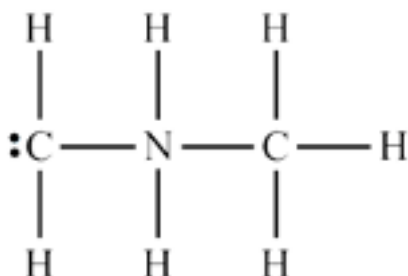
- *d. ionic
- *b. molecular/covalent
- *c. molecular/covalent
- *e. ionic
- *a. ionic

33. Which of these structures exhibit(s) the usual bonding patterns for all atoms?
(Select all that apply.)

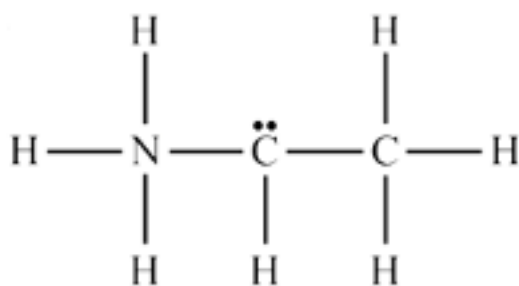
a. Figure



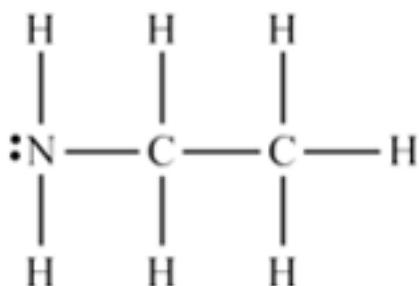
b. Figure



c. Figure

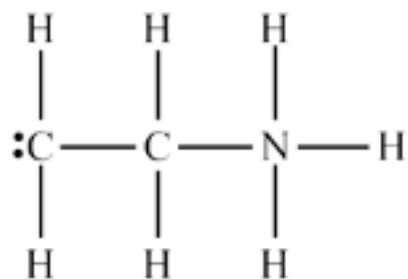


*d. Figure

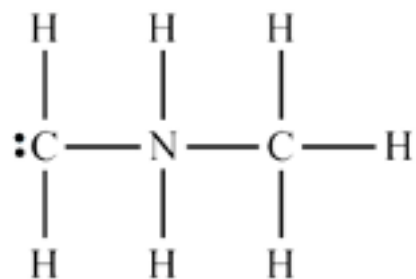


34. Which of these structures exhibit(s) the usual bonding patterns for all atoms?
(Select all that apply.)

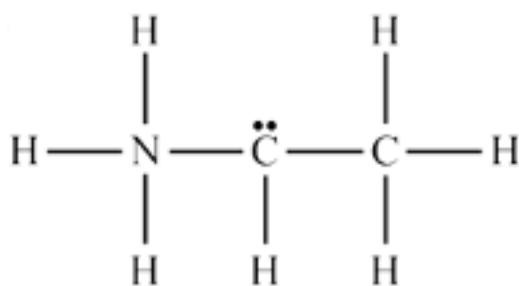
a. Figure



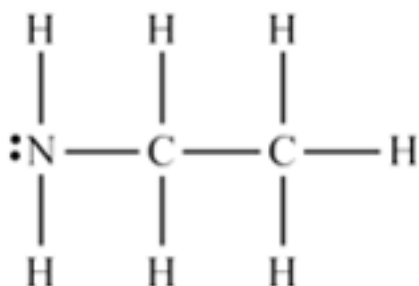
b. Figure



c. Figure

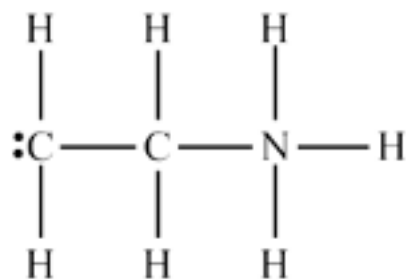


*d. Figure

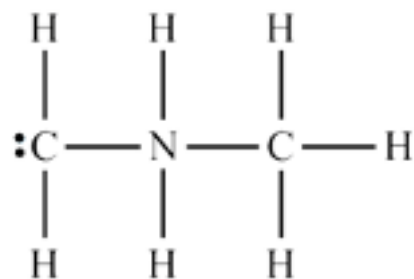


35. Which of these structures exhibit(s) the usual bonding patterns for all atoms?
(Select all that apply.)

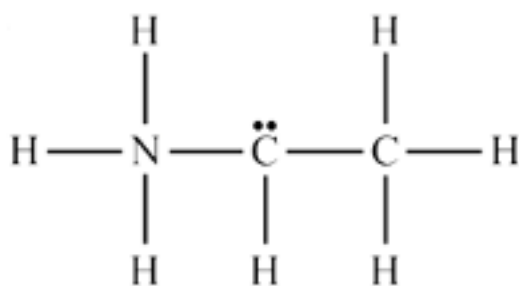
a. Figure



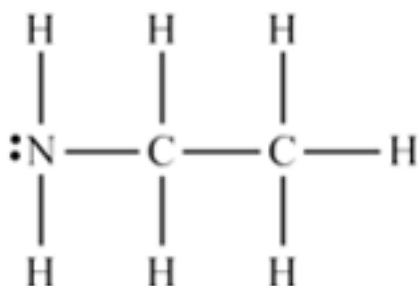
b. Figure



c. Figure

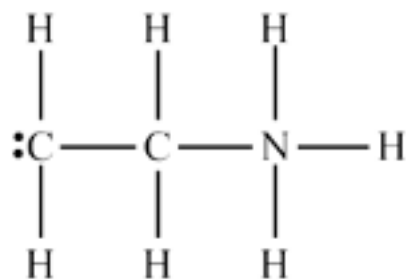


*d. Figure

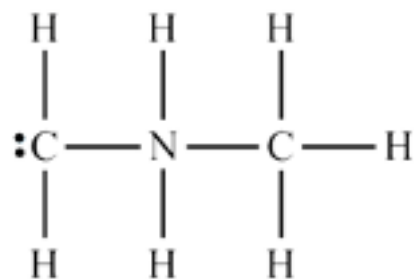


36. Which of these structures exhibit(s) the usual bonding patterns for all atoms?
(Select all that apply.)

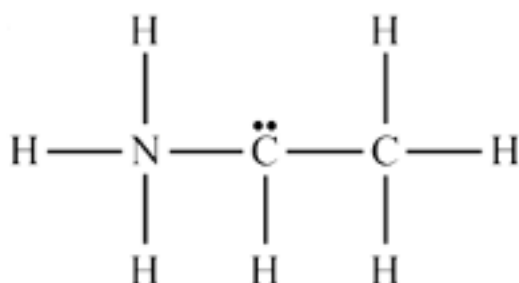
a. Figure



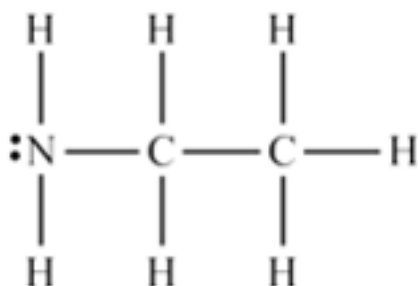
b. Figure



c. Figure



*d. Figure



37. Complete the formula for each ion by choosing the appropriate charge from the dropdown menu.

magnesium ion: Mg _____

copper(I) ion: Cu _____

oxide ion: O _____

- *d. 2+
- *b. +
- *a. 2-
- e. 4-
- c. 3-
- f. -
- i. 0
- g. 3+
- h. 4+

38. Complete the formula for each ion by choosing the appropriate charge from the dropdown menu.

sulfide ion: S _____

copper(II)
ion: Cu_____

sodium ion: Na_____

- *c. 2-
- *b. 2+
- *g. +
- i. 4-
- d. 3-
- h. -
- f. 0
- e. 3+
- a. 4+

39. Complete the formula for each ion by choosing the appropriate charge from the dropdown menu.

chloride
ion: Cl_____

iron(II)
ion: Fe_____

aluminum
ion: Al_____

- *b. -
- *i. 2+
- *h. 3+
- f. 4-
- e. 3-
- d. 2-
- a. 0
- c. +
- g. 4+

40. Complete the formula for each ion by choosing the appropriate charge from the dropdown menu.

magnesium ion: Mg_____

copper(I) ion: Cu_____

oxide ion: O_____

- *b. 2+
- *d. +
- *g. 2-
- f. 4-
- a. 3-
- c. -
- e. 0
- i. 3+
- h. 4+

41. Complete the formula for each ion by filling in the blanks, using appropriate choices from the dropdown menu. For each ion, the top blank is for the charge and the bottom blank is for the number of oxygen atoms.

phosphate ion: PO_____

nitrate ion: NO_____

sulfate ion: SO_____

- *f. 3-
- *j. 4
- *e. -
- *a. 3
- *d. 2-
- *h. 4
- b. 4-
- i. 0
- c. 1
- g. 2

42. Complete the formula for each ion by filling in the blanks, using appropriate choices from the dropdown menu. For each ion, the top blank is for the charge and the bottom blank is for the number of oxygen atoms.

nitrate ion: NO_____

phosphate
ion: PO_____

sulfate ion SO_____

- *h. -
- *e. 3
- *c. 3-
- *b. 4
- *f. 2-
- *j. 4
- i. 4-
- a. 0
- d. 1
- g. 2

43. Complete the formula for each ion by filling in the blanks, using appropriate choices from the dropdown menu. For each ion, the top blank is for the charge and the bottom blank is for the number of oxygen atoms.

sulfate ion: SO_____

nitrate ion: NO_____

phosphate
ion: PO_____

- *d. 2-
- *b. 4
- *g. -
- *j. 3
- *i. 3-
- *h. 4
- e. 4-
- c. 0
- a. 1
- f. 2

44. Complete the formula for each ion by filling in the blanks, using appropriate choices from the dropdown menu. For each ion, the top blank is for the charge and the bottom blank is for the number of oxygen atoms.

phosphate
ion: PO_____

nitrate ion: NO_____

sulfate ion: SO_____

- *b. 3-
- *e. 4
- *a. -
- *g. 3
- *c. 2-
- *d. 4
- f. 4-
- h. 0
- j. 1
- i. 2

45. Give the correct formulas for these compounds. (Capitalization must be correct. For this question only, you do not need to give atom numbers as subscripts; for example, you would give the formula of water as H2O rather than H₂O).

potassium oxide _____
calcium fluoride _____
sodium carbonate _____.

Answers:

- a. K2O
- b. CaF2
- c. Na2CO3

46. Give the correct formulas for these compounds. (Capitalization must be correct. For this question only, you do not need to give atom numbers as subscripts; for example, you would give the formula of water as H2O rather than H₂O).

potassium carbonate _____
calcium oxide _____
sodium fluoride _____

Answers:

- a. K2CO3
- b. CaO
- c. NaF

47. Give the correct formulas for these compounds. (Capitalization must be correct. For this question only, you do not need to give atom numbers as subscripts; for example, you would give the formula of water as H2O rather than H₂O).

potassium fluoride _____
calcium carbonate _____
sodium oxide _____

Answers:

- a. KF
- b. CaCO3

c. Na_2O

48. Give the correct formulas for these compounds. (Capitalization must be correct. For this question only, you do not need to give atom numbers as subscripts; for example, you would give the formula of water as H_2O rather than H_2O).

potassium oxide _____
calcium fluoride _____
sodium carbonate _____

Answers:

- a. K_2O
- b. CaF_2
- c. Na_2CO_3

49. Write the names of the following ionic compounds:

KCl _____
 $\text{Fe}_2(\text{SO}_4)_3$ _____
 MgS _____

Answers:

- a. potassium chloride
- b. iron(III) sulfate, iron (III) sulfate
- c. magnesium sulfide

50. Write the names of the following ionic compounds:

K_2S _____
 MgSO_4 _____
 FeCl_3 _____

Answers:

- a. potassium sulfide
- b. magnesium sulfate
- c. iron(III) chloride, iron (III) chloride

51. Write the names of the following ionic compounds:

Fe_2S_3 _____
 K_2SO_4 _____
 MgCl_2 _____

Answers:

- a. iron(III) sulfide, iron (III) sulfide
- b. potassium sulfate
- c. magnesium chloride

52. Write the names of the following ionic compounds:

KCl _____
 $\text{Fe}_2(\text{SO}_4)_3$ _____
 MgS _____

Answers:

- a. potassium chloride
- b. iron(III) sulfate, iron (III) sulfate
- c. magnesium sulfide

53. Which structure is correct for 2-pentene?

- a. $\text{CH}_3\text{C} \equiv \text{CH}$
- *b. $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_3$
- c. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
- d. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$

54. Which structure is correct for hexane?

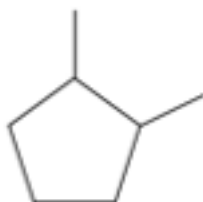
- a. $\text{CH}_3\text{C} \equiv \text{CH}$
- b. $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_3$
- c. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
- *d. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$

56. Which structure is correct for 2-pentene?

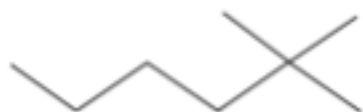
- a. $\text{CH}_3\text{C} \equiv \text{CH}$
- *b. $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_3$
- c. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
- d. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$

57. Which structure is correct for 2,2-dimethylpentane?

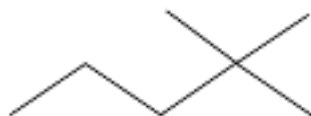
a. Figure



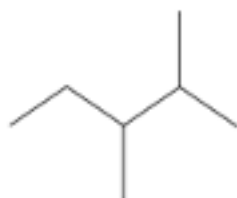
b. Figure



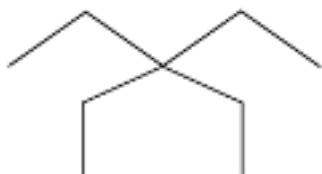
*c. Figure



d. Figure



e. Line structure of hydrocarbon. Contact instructor if image does not load.

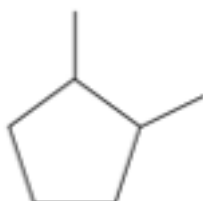


f. Line structure of hydrocarbon. Contact instructor if image does not load.

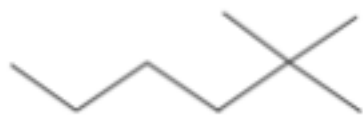


58. Which structure is correct for 3,3-diethylpentane?

a. Figure



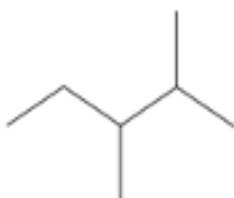
b. Figure



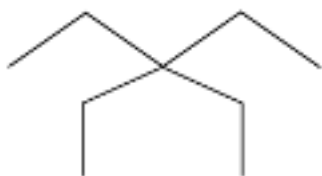
c. Figure



d. Figure



*e. Figure

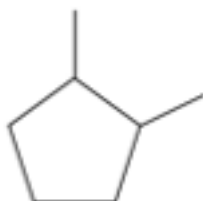


f. Figure

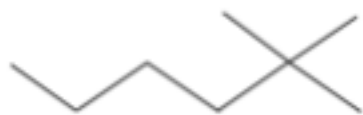


59. Which structure is correct for 2,3-dimethylpentane?

a. Figure



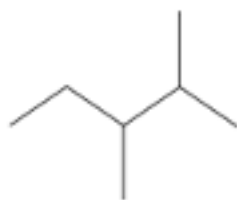
b. Figure



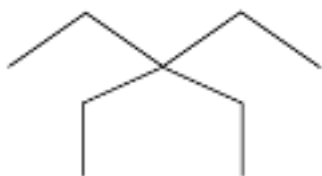
c. Figure



*d. Figure



e. Figure

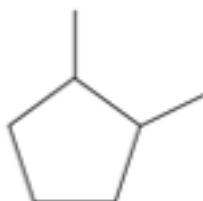


f. Figure

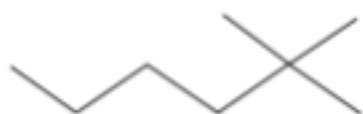


60. Which structure is correct for 2,2-dimethylhexane?

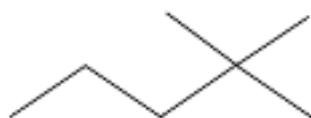
a. Figure



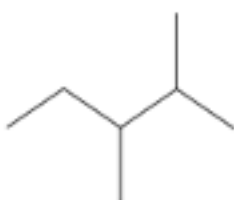
*b. Figure



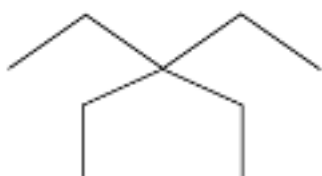
c. Figure



d. Figure

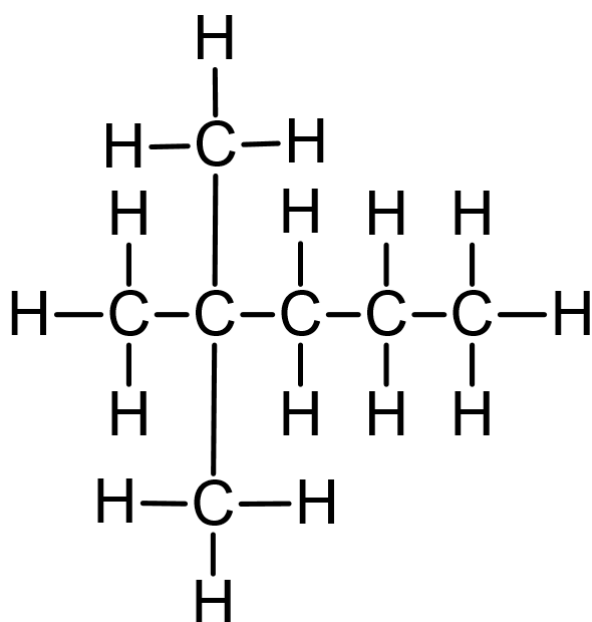


e. Figure



f. Figure

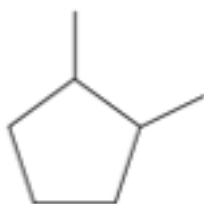




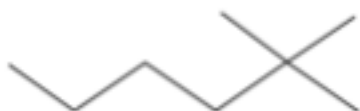
61.

Choose the line structure that matches the full structure above.

a. Figure



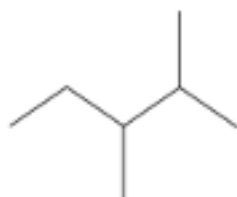
b. Figure



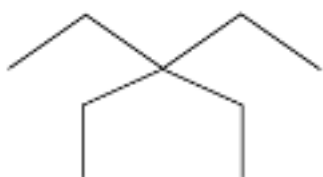
*c. Figure



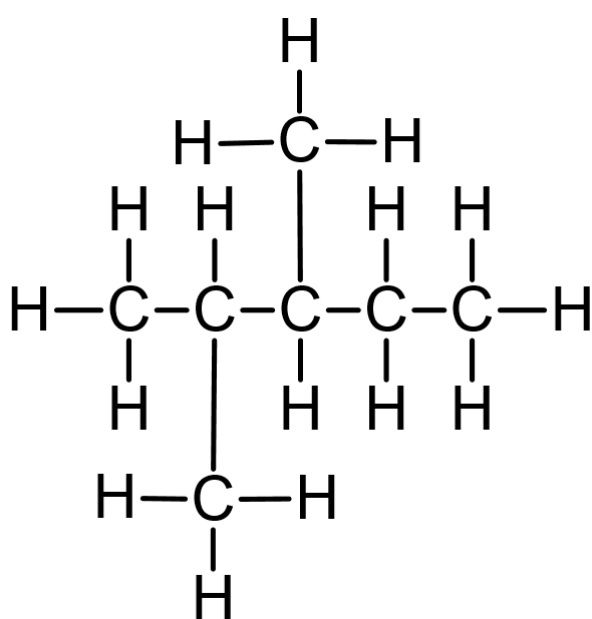
d. Figure



e. Figure



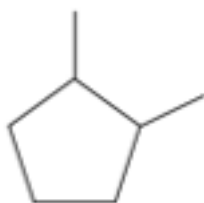
f. Figure



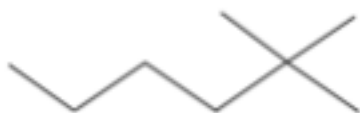
62.

Choose the line structure that matches the full structure above.

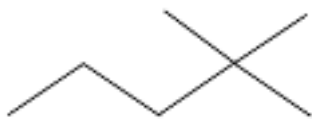
a. Figure



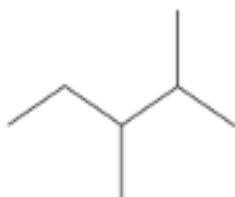
b. Figure



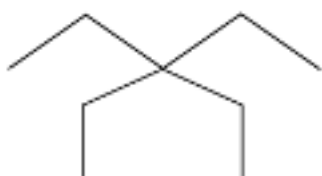
c. Figure



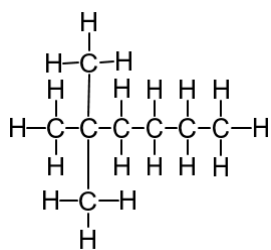
*d. Figure



e. Figure



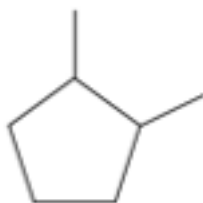
f. Figure



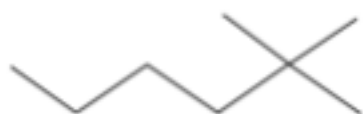
63.

Choose the line structure that matches the full structure above.

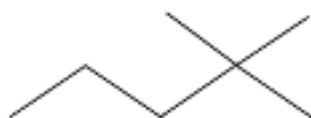
a. Figure



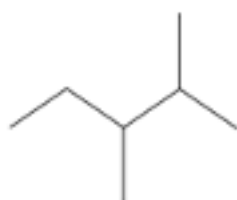
*b. Figure



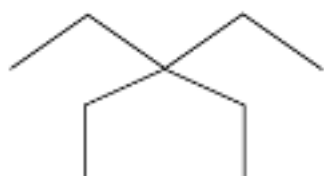
c. Figure



d. Figure

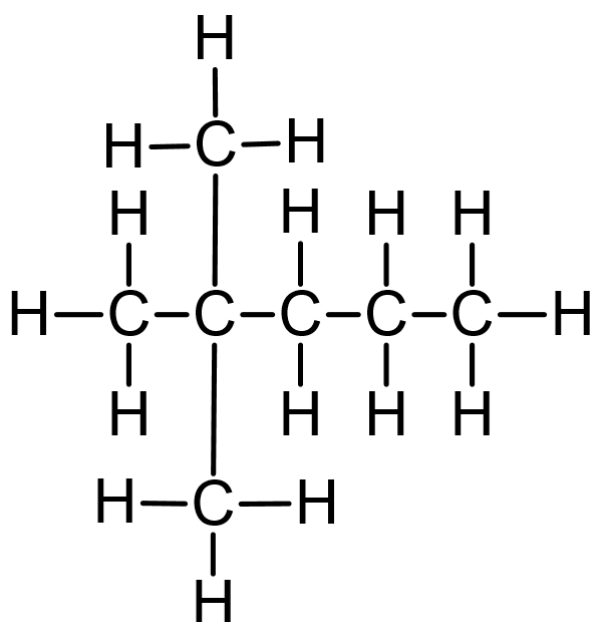


e. Figure



f. Figure

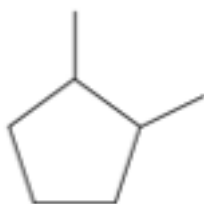




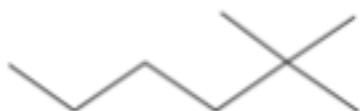
64.

Choose the line structure that matches the full structure above.

a. Figure



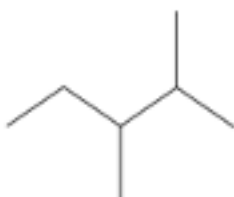
b. Figure



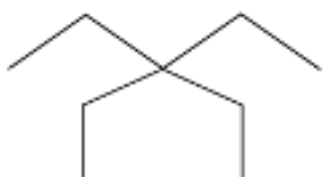
*c. Figure



d. Figure



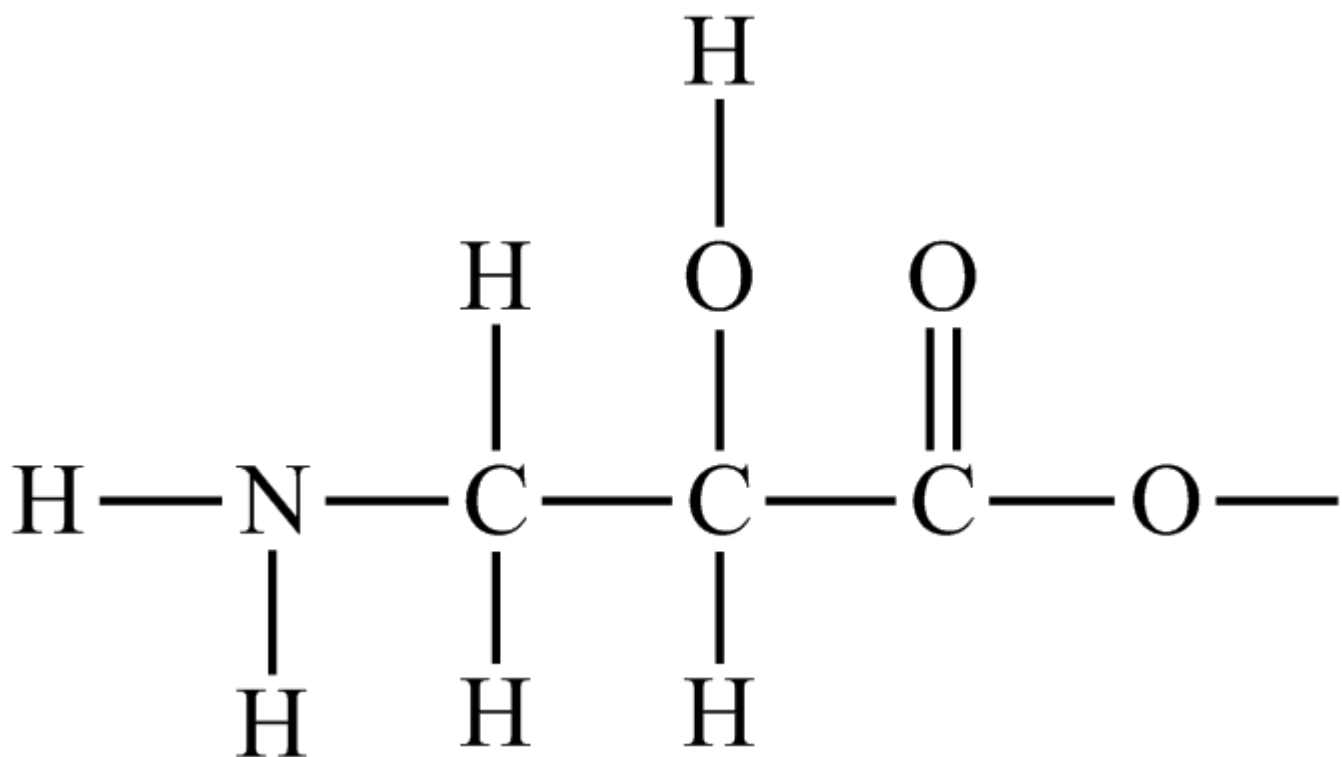
e. Figure



f. Figure

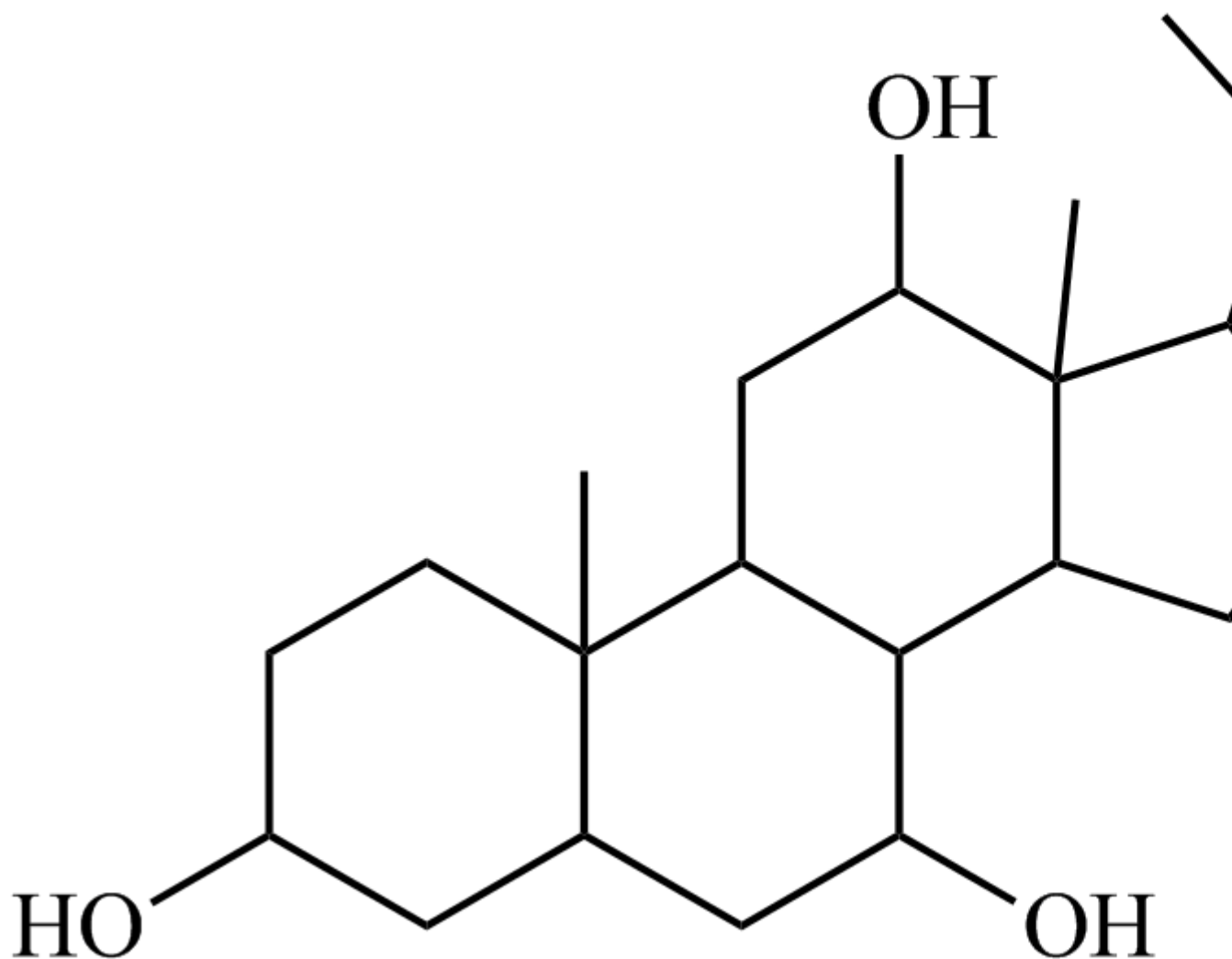


65. Which functional groups are present in the structure shown? Check all that apply.



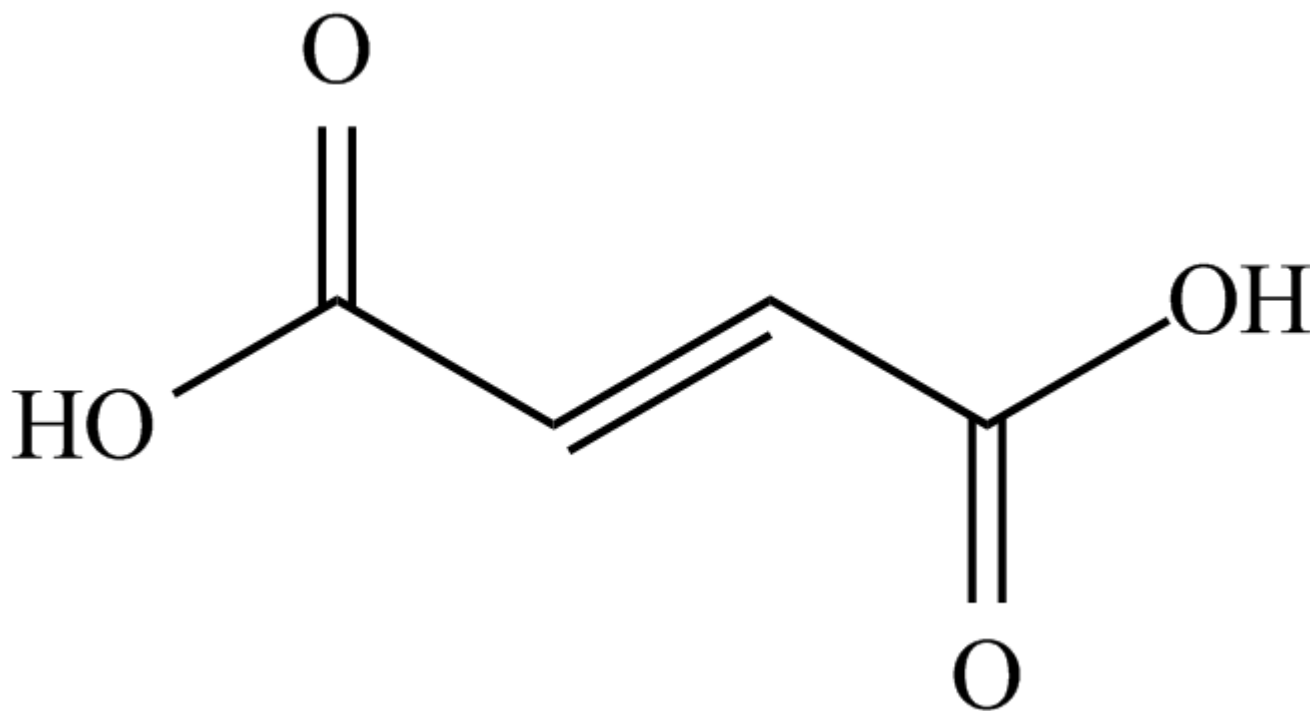
- *a. alcohol
- b. aldehyde
- c. alkene
- *d. amine
- *e. carboxylic acid

66. Which functional groups are present in the structure shown? Check all that apply.



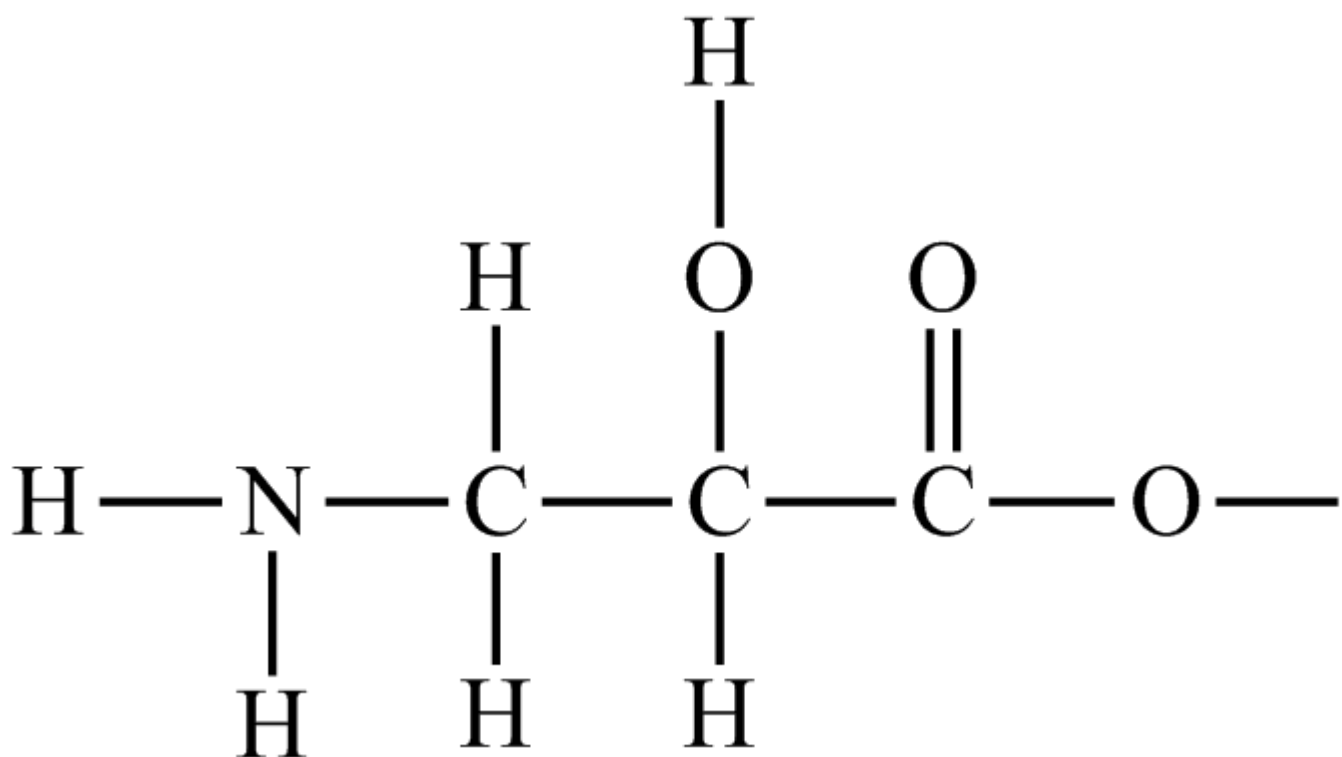
- *a. alcohol
- b. aldehyde
- c. alkene
- d. amine
- *e. carboxylic acid

67. Which functional groups are present in the structure shown? Check all that apply.



- a. alcohol
- b. aldehyde
- *c. alkene
- d. amine
- *e. carboxylic acid

68. Which functional groups are present in the structure shown? Check all that apply.



- *a. alcohol
- b. aldehyde
- c. alkene
- *d. amine
- *e. carboxylic acid

69. Match each name of an organic compound with the functional group it contains.

ethanol _____

ethanal _____

ethene _____

- *c. alcohol
- *e. aldehyde
- *a. alkene
- d. amine
- b. carboxylic acid

70. Match each name of an organic compound with the functional group it contains.

2-butanol _____

propanal _____

propene _____

- *d. alcohol
- *b. aldehyde
- *a. alkene
- e. amine
- c. carboxylic acid

71. Match each name of an organic compound with the functional group it contains.

propanol _____
 methanal _____
 2-butene _____

- *b. alcohol
- *d. aldehyde
- *a. alkene
- e. amine
- c. carboxylic acid

72. Match each name of an organic compound with the functional group it contains.

ethanol _____
 butanal _____
 propene _____

- *e. alcohol
- *d. aldehyde
- *b. alkene
- a. amine
- c. carboxylic acid

73. Rank the states from **lowest energy (1)** to **highest energy (3)**.

- 1. solid
- 2. liquid
- 3. **gas**

74. Which state of a given substance is most likely under high-energy conditions?

- a. Solid
- b. Liquid
- *c. **Gas**

75. Which state of a given substance has the least energy?

- *a. Solid
- b. Liquid
- c. Gas

76. Rank the states from **lowest energy (1)** to **highest energy (3)**.

- 1. Solid
- 2. Liquid
- 3. Gas

77. Rank the states from **lowest temperature (1)** to **highest temperature (3)**, for a given substance.

- 1. Solid
- 2. Liquid
- 3. Gas

78. Which state of a given substance is most likely at low temperatures?

- *a. Solid
- b. Liquid
- c. Gas

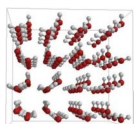
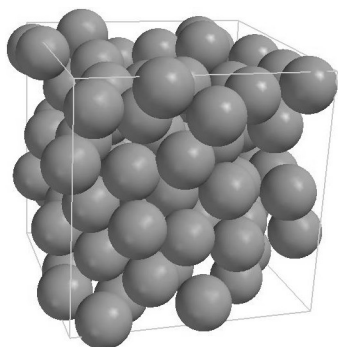
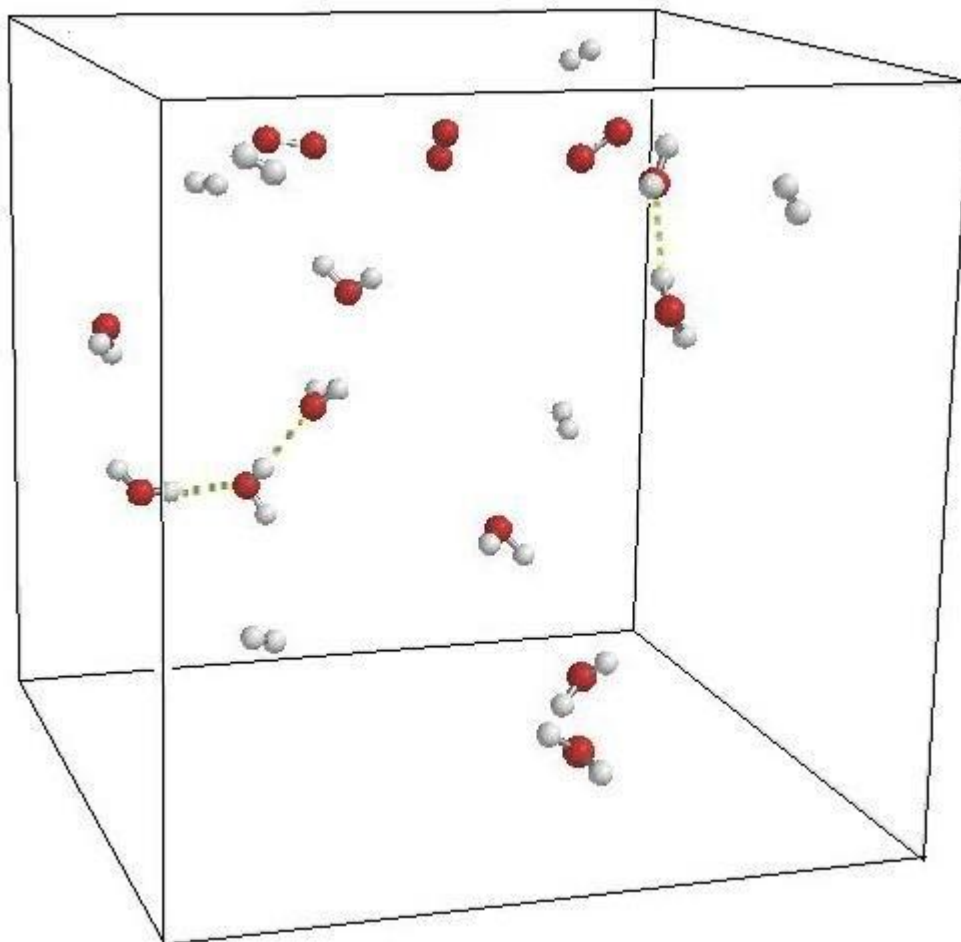
79. Which state of a given substance requires the highest temperature?

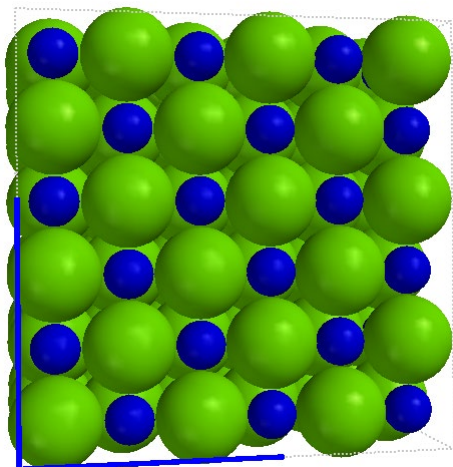
- a. Solid
- b. Liquid
- *c. Gas

80. Rank the states from **lowest temperature (1)** to **highest temperature (3)**, for a given substance.

- 1. Solid
- 2. Liquid
- 3. Gas

81. Classify each of these samples as a solid, liquid or gas.





- *a. gas
- *b. liquid
- *c. solid
- *d. solid

82. Classify each of these samples as a solid, liquid or gas.

- *a. liquid
- *b. solid
- *d. solid
- *c. gas

83. Copy of
Classify each of these samples as a solid, liquid or gas.

- *c. solid
- *b. gas
- *d. liquid
- *a. solid

84. Classify each of these samples as a solid, liquid or gas.

- *d. solid
- *c. solid
- *a. liquid
- *b. gas

85. Classify each of these samples as a solid, liquid or gas at room temperature:

AgCl _____

N₂ _____

hexane _____

- *a. solid
- *b. gas
- *c. liquid

86. Classify each of these samples as a solid, liquid or gas at room temperature:

N₂ _____

AgCl _____

hexane _____

- *c. gas
- *b. solid
- *a. liquid

87. Classify each of these samples as a solid, liquid or gas at room temperature:

hexane _____

AgCl _____

N₂ _____

- *b. liquid
- *c. solid
- *a. gas

88. Classify each of these samples as a solid, liquid or gas at room temperature:

AgCl _____

N₂ _____

hexane _____

- *b. solid
- *a. gas
- *c. liquid

89. A certain substance melts at 14°C and boils at 44°C. What is its state at room temperature?

- a. solid
- *b. liquid
- c. gas

90. A certain substance melts at 50°C and boils at 85°C. What is its state at room temperature?

- *a. solid
- b. liquid
- c. gas

91. A certain substance melts at -11°C and boils at 15°C. What is its state at room temperature?

- a. solid
- b. liquid
- *c. gas

92. A certain substance melts at 14°C and boils at 44°C. What is its state at room temperature?

- a. solid
- *b. liquid
- c. gas

94. Match each change in state with its appropriate term.

liquid to solid: _____

liquid to gas: _____

solid to gas: _____

- *b. freezing
- *c. evaporation
- *e. sublimation
- f. melting
- d. condensation
- a. deposition

95. Match each change in state with its appropriate term.

liquid to gas: _____

solid to gas: _____

liquid to solid: _____

- *a. evaporation

- *d. sublimation
- *c. freezing
- b. melting
- f. condensation
- e. deposition

96. Match each change in state with its appropriate term.

solid to gas: _____

liquid to solid: _____

liquid to gas: _____

- *a. sublimation
- *d. freezing
- *c. evaporation
- f. melting
- b. condensation
- e. deposition