Question 1

How many of the following species are paramagnetic?
Sc3ClCa2Se

A) 0
B) 2
C) 1
D) 4
E) 3
Answer: https://biology-forums.com/index.php?topic=1879887

Question 2

Determine the velocity of a medicine ball (m = 10.0 kg) with a wavelength of
1.33 10-35 m.
A) 8.81 m/s
B) 12.3 m/s
C) 2.21 m/s
D) 4.98 m/s
E) 6.44 m/s
Answer: https://biology-forums.com/index.php?topic=1879736

Question 3

_____ is applied to roads in wintertime so that the ice will melt at a lower temperature.
A) Antifreeze
B) Water
C) Salt
D) Dirt
E) Syrup
Answer: https://biology-forums.com/index.php?topic=1880352

Question 4

The density of a gas is 1.43 g/L at STP. What is the gas?
A) H2
B) F2
C) Kr
D) O2
E) N2
Answer: https://biology-forums.com/index.php?topic=1879546

Question 5

A 0.465 g sample of an unknown compound occupies 245 mL at 298 K and 1.22 atm. What is the molar mass of the unknown compound?
A) 26.3 g/mol
B) 33.9 g/mol
C) 12.2 g/mol
D) 38.0 g/mol
E) 81.8 g/mol
Answer: https://biology-forums.com/index.php?topic=1879486

Question 6

Which multiplier does the abbreviation m represent?
A) 1 103
B) 1 106
C) 1 109
D) 1 10-3
E) 1 10-6
Answer: https://biology-forums.com/index.php?topic=1879018

Question 7

What is the reaction at the anode in a breathalyzer?

A) Ethanol is oxidized to acetic acid.
B) Acetic acid is reduced to ethanol.
C) Oxygen is reduced.
D) Hydrogen is oxidized.
E) Ethanol is oxidized to acetaldehyde.
Answer: https://biology-forums.com/index.php?topic=1880864

Question 8

Which of the following represents the Lewis structure for Mg?
A)
B)
C)
D)
E)
Answer: https://biology-forums.com/index.php?topic=1879907

Question 9

A solution is prepared by dissolving 0.23 mol of nitrous acid and 0.27 mol of sodium nitrite in water sufficient to yield 1.00 L of solution. The addition of 0.05 mol of HCl to this buffer solution causes the pH to drop slightly. The pH does not decrease drastically because the HCl reacts with the _____ present in the buffer solution. The Ka of nitrous acid is 1.36 10-3.

A) H_2O
B) H_3O^+
C) nitrite ion
D) nitrous acid
E) This is a buffer solution: the pH does not change upon addition of acid or base.
Answer: https://biology-forums.com/index.php?topic=1880691

Question 10

Which of the following quantum numbers describes the shape of an orbital?
A) principal quantum number
B) magnetic quantum number
C) spin quantum number
D) Schrdinger quantum number
E) angular momentum quantum number
Answer: https://biology-forums.com/index.php?topic=1879743

Question 11

How many atoms are in 2.50 moles of N?
A) 4.52 1024 atoms
B) 1.51 1024 atoms
C) 5.02 1023 atoms
D) 3.01 1024 atoms
E) 7.53 1023 atoms
Answer: https://biology-forums.com/index.php?topic=1879155

Question 12

Energy that is associated with the temperature of an object is called
A) kinetic energy.
B) thermal energy.
C) potential energy.
D) chemical energy.
Answer: https://biology-forums.com/index.php?topic=1879609

Question 13

Draw the best Lewis structure for FO4 and determine the formal charge on fluorine.
A) +1
B) +2
C) 0
D) +3
E) +4

Answer: https://biology-forums.com/index.php?topic=1880001

Question 14

Identify a process that is NOT reversible.
A) melting of steel
B) freezing water
C) melting of ice
D) frying an egg
E) deposition of carbon dioxide
Answer: https://biology-forums.com/index.php?topic=1880771

Question 15

Identify the bonds that connect the protein structures in a pleated sheet.
A) ester linkages
B) sulfide linkages
C) peptide bonds
D) hydrogen bonds
E) glycosidic linkages
Answer: https://biology-forums.com/index.php?topic=1881090
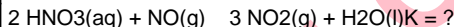
Question 16

How many moles of LiBr are contained in 347 g of water in a 0.175 m LiBr solution?
A) 1.65 10-2 mol LiBr
B) 5.04 10-2 mol LiBr
C) 6.07 10-2 mol LiBr
D) 3.22 10-2 mol LiBr
E) 1.98 10-2 mol LiBr
Answer: https://biology-forums.com/index.php?topic=1880329

Question 17

Use the free energies of formation given below to calculate the equilibrium constant (K) for the following reaction at 298 K.
2 HNO3(aq) + NO(g)   3 NO2(g) + H2O(l)K = ?
Gf (kJ/mol)-110.987.651.3-237.1
A) 8.71 108
B) 0.980
C) 1.15 10-9
D) 1.02
E) 5.11 10-4
Answer: https://biology-forums.com/index.php?topic=1880800

Question 18

A solution is prepared by dissolving 7.00 g of glycerin (C3H8O3) in 201 g of ethanol (C2H5OH). The freezing point of the solution is _____C. The freezing point of pure ethanol is -114.6C at 1 atm. The molal-freezing-point-depression constant (Kf) for ethanol is 1.99C/m. The molar masses of glycerin and of ethanol are 92.1 g/mol and 46.1 g/mol, respectively.
A) -121.3
B) 0.752
C) -107.9
D) -113.8
E) -115.4
Answer: https://biology-forums.com/index.php?topic=1880358

Question 19

How much energy is required to heat 36.0 g H2O from a liquid at 65C to a gas at 115C? The following physical data may be useful.
Hvap = 40.7 kJ/mol
Cliq = 4.18 J/gC
Cgas = 2.01 J/gC
Csol = 2.09 J/gC
Tmelting = 0C
Tboiling = 100C
A) 63.5 kJ

B) 87.7 kJ
C) 10.9 kJ
D) 52.7 kJ
E) 91.7 kJ
Answer: https://biology-forums.com/index.php?topic=1880121

Question 20

The Dirty Dozen refer to twelve chemicals that are harmful for the environment. Identify the compound that was not used as an insecticide.
A) Chlordane
B) DDT
C) Aldrin
D) polychlorinated biphenyl
E) Heptachlor
Answer: https://biology-forums.com/index.php?topic=1880280