Chemistry-575 Semester-1 Review Practice Test (General review with an emphasis on the types of questions missed most frequently by students.)
Answer Section

MATCHING

1. ANS: B PTS: 1 DIF: L1 REF: p. 808
   OBJ: 25.1.1 Explain how an unstable nucleus releases energy.
2. ANS: A PTS: 1 DIF: L1 REF: p. 800
   OBJ: 25.1.2 Describe the three main types of nuclear radiation.
3. ANS: C PTS: 1 DIF: L1 REF: p. 801
   OBJ: 25.1.2 Describe the three main types of nuclear radiation.

4. ANS: A PTS: 1 DIF: L1 REF: p. 799
   OBJ: 25.1.1 Explain how an unstable nucleus releases energy.
5. ANS: B PTS: 1 DIF: L1 REF: p. 813
   OBJ: 25.1.1 Explain how an unstable nucleus releases energy. | 25.3.3 Distinguish fission reactions from fusion reactions. STA: 12.F.5.a

MULTIPLE CHOICE

6. ANS: D PTS: 1 DIF: L1 REF: p. 40
   OBJ: 2.1.2 Define physical property and list several common physical properties of substances.
   STA: 12.C.5.b
7. ANS: D PTS: 1 DIF: L1 REF: p. 45
   OBJ: 2.2.2 Distinguish between homogeneous and heterogeneous samples of matter.
8. ANS: B PTS: 1 DIF: L2 REF: p. 45
   OBJ: 2.2.2 Distinguish between homogeneous and heterogeneous samples of matter. | 2.2.3 Describe two ways that components of mixtures can be separated.
9. ANS: D PTS: 1 DIF: L1 REF: p. 53
   OBJ: 2.4.1 Describe what happens during a chemical change.
10. ANS: A
    Density is found by the following formula: D=mass/volume

    It does not matter how much of a substance you have, the density will always be constant. As the mass increases, so does the volume. The density always will be constant.

    PTS: 1 DIF: L1 REF: p. 90 | p. 91
    OBJ: 3.4.1 Calculate the density of a material from experimental data.

11. ANS: D
Density is found by the following formula: D=mass/volume

It does not matter how much of a substance you have, the density will always be constant. As the mass increases, so does the volume. The density always will be constant.

PTS: 1 DIF: L1 REF: p. 90 | p. 91
OBJ: 3.4.1 Calculate the density of a material from experimental data.

12. ANS: C
Density is found by the following formula: D=mass/volume

It does not matter how much of a substance you have, the density will always be constant. As the mass increases, so does the volume. The density always will be constant once you divide mass/volume. Density is a physical property so all samples of the same substance have THE SAME DENSITY!

PTS: 1 DIF: L1 REF: p. 90 | p. 91
OBJ: 3.4.1 Calculate the density of a material from experimental data.

13. ANS: B
$$\text{Percent Error} = \frac{|\text{accepted value} - \text{experimental value}|}{\text{accepted value}} \times 100$$

$$\text{\% Error} = \frac{74\% - 62\%}{74\%} \times 100 = 16\% \text{ error}$$

PTS: 1 DIF: L1 REF: p. 90 | p. 91
OBJ: 3.4.1 Calculate the density of a material from experimental data.

14. ANS: C
NEVER PLAY WITH THE PROTONS! Electrons are outside of the nucleus and are the only subatomic particle that can be lost or gained in chemistry. (Unless you have a nuclear reactor)

If you change the protons, you change into a different element.
If you change the electrons, you form an ion with a positive or negative charge.
If you change the neutrons, you form a different isotope of the same element.

PTS: 1 DIF: L1 REF: p. 112 | p. 113
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other.

15. ANS: B
Cations are positve (pawsitive). When atoms lose negative electrons they become positive.

Anions (A-negative-ion) are negative. When atoms gain negative electrons they become negative.

PTS: 1 DIF: L1 REF: p. 112 | p. 113
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other.

16. ANS: D
Cations are positve (pawsitive). When atoms lose negative electrons they become positive.

Anions (A-negative-ion) are negative. When atoms gain negative electrons they become negative.

PTS: 1 DIF: L1 REF: p. 112 | p. 113
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other.

17. ANS: C
Cations are positve (pawsitive). When atoms lose negative electrons they become positive.

Anions (A-negative-ion) are negative. When atoms gain negative electrons they become negative.

PTS: 1 DIF: L1 REF: p. 112 | p. 113
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other.

18. ANS: B PTS: 1 DIF: L2 REF: p. 111
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other.
STA: 12.C.4.b

19. ANS: A PTS: 1 DIF: L2 REF: p. 111
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other.
STA: 12.C.4.b

20. ANS: D
A Atomic # = protons
P Protons = electrons when neutral
E Electrons

M Mass # -
A Atomic # =
N Neutrons

PTS: 1 DIF: L2 REF: p. 111
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other.
STA: 12.C.4.b

21. ANS: C
Isotopes of the same element have to have the same atomic number and the same number of protons. Isotopes have different number of neutrons.

PTS: 1 DIF: L2 REF: p. 112
OBJ: 4.3.1 Explain what makes elements and isotopes different from each other.

22. ANS: C
Density is found by the following formula: Density=Mass/Volume

The equation can be manipulated so that Volume = Mass/Density in order to solve for Volume.

PTS: 1 DIF: L1 REF: p. 90 | p. 91
OBJ: 3.4.1 Calculate the density of a material from experimental data.

23. ANS: C PTS: 1 DIF: Bloom's Level 2 | DOK Level 1
REF: Page 231 NAT: B.6 STA: 12.C.4a

24. ANS: B PTS: 1 DIF: Bloom's Level 1 | DOK Level 1
REF: Page 231 NAT: B.6 STA: 12.C.4a
25. ANS: B PTS: 1 DIF: Bloom's Level 4 | DOK Level 2
REF: Page 244 NAT: UCP.2 | B.1 STA: 12.C.4b
26. ANS: C PTS: 1 DIF: Bloom's Level 4 | DOK Level 2
REF: Page 244 NAT: UCP.2 | B.1 STA: 12.C.4b
27. ANS: D PTS: 1 DIF: Bloom's Level 3 | DOK Level 2
REF: Page 244 NAT: UCP.2 | B.1 STA: 12.C.4b
28. ANS: D PTS: 1 DIF: Bloom's Level 4 | DOK Level 2
REF: Page 244 NAT: UCP.2 | B.1 STA: 12.C.4b
29. ANS: D PTS: 1 DIF: Bloom's Level 2 | DOK Level 2
REF: Page 244 NAT: UCP.2 STA: 12.C.4b
30. ANS: A PTS: 1 DIF: Bloom's Level 4 | DOK Level 2
REF: Page 247 NAT: UCP.2 STA: 12.C.4b
31. ANS: B PTS: 1 DIF: Bloom's Level 4 | DOK Level 3
REF: Page 101 NAT: B.1 | B.2 STA: 12.C.5b
32. ANS: A PTS: 1 DIF: Bloom's Level 2 | DOK Level 1
REF: Page 85 NAT: B.1 | B.2 STA: 12.C.5b
33. ANS: B PTS: 1 DIF: Bloom's Level 4 | DOK Level 2
REF: Page 101 NAT: B.1 | B.2 STA: 12.C.5b
34. ANS: A PTS: 1 DIF: Bloom's Level 4 | DOK Level 1
REF: Page 96 NAT: B.1 | B.2 STA: 12.C.5b
35. ANS: C PTS: 1 DIF: Bloom's Level 2 | DOK Level 1
REF: Page 94 NAT: UCP.1 STA: 12.C.5b
36. ANS: A PTS: 1 DIF: Bloom's Level 2 | DOK Level 1
REF: Page 94 NAT: UCP.1 STA: 12.C.5b
37. ANS: C PTS: 1 DIF: Bloom's Level 4 | DOK Level 3
REF: Page 101 NAT: B.1 | B.2 STA: 12.C.5b
38. ANS: B PTS: 1 DIF: Bloom's Level 2 | DOK Level 2
REF: Page 99 NAT: UCP.2 | B.2 STA: 12.C.4b
39. ANS: B PTS: 1 DIF: Bloom's Level 1 | DOK Level 1
REF: Page 105 NAT: B.1 | B.2 STA: 12.C.5b
40. ANS: B PTS: 1 DIF: Bloom's Level 4 | DOK Level 4
REF: Page 154 NAT: B.1 | B.2 STA: 12.C.4b
41. ANS: A PTS: 1 DIF: Bloom's Level 3 | DOK Level 3
REF: Page 178 NAT: B.1 | B.2 STA: 12.C.4b
42. ANS: C PTS: 1 DIF: Bloom's Level 3 | DOK Level 2
REF: Page 157 NAT: UCP.2 | B.2 STA: 12.C.4b
43. ANS: D PTS: 1 DIF: Bloom's Level 3 | DOK Level 2
REF: Page 159 NAT: UCP.2 | B.2 STA: 12.C.4b
44. ANS: C PTS: 1 DIF: L1 REF: p. 802
OBJ: 25.1.2 Describe the three main types of nuclear radiation.
45. ANS: A PTS: 1 DIF: L2 REF: p. 801
OBJ: 25.2.1 Describe the type of decay a radioisotope undergoes.
STA: 12.C.5.a | 12.D.4.b
46. ANS: C PTS: 1 DIF: L3 REF: p. 803 | p. 804
OBJ: 25.2.1 Describe the type of decay a radioisotope undergoes.

47. ANS: B
Independent variables: "I" choose. In this lab the student choose the size of the ice blocks.

PTS: 1 DIF: L3 REF: p. 803 | p. 804
OBJ: 25.2.1 Describe the type of decay a radioisotope undergoes.

48. ANS: C
Dependent variables are almost always placed on the Y axis when graphing.

PTS: 1 DIF: L3 REF: p. 803 | p. 804
OBJ: 25.2.1 Describe the type of decay a radioisotope undergoes.

49. ANS: C
Slope = change in Y / change in X
Divide your answers out. Never leave a slope in fraction form.

PTS: 1 DIF: L3 REF: p. 803 | p. 804
OBJ: 25.2.1 Describe the type of decay a radioisotope undergoes.

50. ANS: D
No explanation needed!

PTS: 1 DIF: L3 REF: p. 803 | p. 804
OBJ: 25.2.1 Describe the type of decay a radioisotope undergoes.