**TOSS-UP**

1) CHEMISTRY *Short Answer* What is the common name for mercury (Hg)?

ANSWER: QUICKSILVER

**BONUS**

2) CHEMISTRY *Short Answer* Which two elements occurring as polyatomic molecules are not diatomic?

ANSWER: PHOSPHOROUS AND SULFUR

**TOSS-UP**

3) CHEMISTRY *Multiple Choice* What is the classical name of the compound FeCl2?

W) Ferrous Chloride

X) Ferrous Chlorite

Y) Ferric Chloride

Z) Ferric Chlorite

ANSWER: W) FERROUS CHLORIDE

**BONUS**

4) CHEMISTRY *Short Answer* Considering a 200g sample of gold which decreased 100oC in temperature, what is the heat lost or gained in J, if the specific heat of gold is 0.131 J/goC?

ANSWER: 2620 J

**TOSS-UP**

5) CHEMISTRY *Multiple Choice* How many joules is equivalent to 1 calorie?

W) 0.23

X) 1.000

Y) 4.184

Z) 4.536

ANSWER: Y) 4.184

**BONUS**

6) CHEMISTRY *Short Answer* What is the name of the polyatomic ion MnO4?

ANSWER: PERMANGANATE

**TOSS-UP**

7) CHEMISTRY *Short Answer* How many atoms are in 1.000 mole of H2O?

ANSWER: 1.8066 x 1024

**BONUS**

8) CHEMISTRY *Multiple Choice* Which element has this electron configuration: 1s22s22p2?

W) Beryllium

X) Boron

Y) Lithium

Z) Carbon

ANSWER: X) BORON

**TOSS-UP**

9) CHEMISTRY *Short Answer* What term describes a solution which contains a solute and solvent in equilibrium?

ANSWER: SATURATED

**BONUS**

10) CHEMISTRY *Multiple Choice* Which of the following compounds is ionic?

W) Lithium Fluoride

X) Water

Y) Aluminum Bromide

Z) Sulfur Dioxide

ANSWER: W) LITHIUM FLUORIDE

**TOSS-UP**

11) CHEMISTRY *Short Answer* What is the light particle called?

ANSWER: PHOTON

**BONUS**

12) CHEMISTRY *Multiple Choice* Phosphorus has 15 electrons, what is its valence electron configuration?

ANSWER: 3s23p3

**TOSS-UP**

13) CHEMISTRY *Short Answer* What is the classical name for mercury?

ANSWER: HYDRARGYRUM

**BONUS**

14) CHEMISTRY *Short Answer* What is the chemical formula for acetylene?

ANSWER: C2H2

**TOSS-UP**

15) CHEMISTRY *Multiple Choice* Before the procedure begins; the liquid in the beaker is colorless. After adding a sample chemical, the color of the liquid changes quickly to a red, but there is no byproduct. What is this called?

W) Synthesis

X) Neutralization

Y) Decomposition

Z) Titration

ANSWER: Z) TITRATION

**BONUS**

16) CHEMISTRY *Multiple Choice* Cheese is an example of which of the following?

W) Solid Foam

X) Sol

Y) Liquid Aerosol

Z) Solid Emulsion

ANSWER: Z) SOLID EMULSION

**TOSS-UP**

17) CHEMISTRY *Short Answer* What is the chemical formula for hydrogen fluoride?

ANSWER: HF

**BONUS**

18) CHEMISTRY *Short Answer* What is the density in g/cm3 of a 35g object with a volume of 7ml?

ANSWER: 5g/cm3

**TOSS-UP**

19) CHEMISTRY *Short Answer* What is the name of the compound MgO?

ANSWER: MAGNESIUM OXIDE

**BONUS**

20) CHEMISTRY *Short Answer* What is another name for an alkane?

ANSWER: SATURATED HYDROCARBON

**TOSS-UP**

21) CHEMISTRY *Short Answer* How is the hydronium ion produced?

ANSWER: PROTONATION OF WATER

**BONUS**

22) CHEMISTRY *Multiple Choice* Which of the following describes osmosis?

W) Hypotonic solution to hypertonic solution

X) Hypertonic solution to hypotonic solution

Y) Isotonic solution to isotonic solution

Z) Hypotonic solution to hypotonic solution

**TOSS-UP**

23) CHEMISTRY *Short Answer* The freezing point of a substance is the same as what?

ANSWER: MELTING POINT

**BONUS**

24) CHEMISTRY *Multiple Choice* What is the molecular shape of methane?

W) Trigonal planar

X) Tetrahedral

Y) Linear shape

Z) Octahedral

**TOSS-UP**

25) CHEMISTRY *Short Answer* Is photosynthesis an exothermic of endothermic reaction?

ANSWER: ENDOTHERMIC

**BONUS**

26) CHEMISTRY *Short Answer* What is the polyatomic ion’s chemical formula in calcium silicate?

ANSWER: SiO3

**TOSS-UP**

27) MATHEMATICS *Short Answer* What is the value of (x+2)2 if x=6?

ANSWER: 64

**BONUS**

28) MATHEMATICS *Multiple Choice* What is the radius of a circle with the equation (x+3)2 + (y+3)2 +3 = 39?

W) 3 units

X) 4 units

Y) 5 units

Z) 6 units

ANSWER: X) 4 UNITS

**TOSS-UP**

29) MATHEMATICS *Short Answer* What is the smallest positive number greater than 1 that has exactly 3 factors?

ANSWER: 4

**BONUS**

30) MATHEMATICS *Multiple Choice* I have eight shirts and seven pants, how many pairs of outfits do I have?

W) 15

X) 30

Y) 56

Z) 112

ANSWER: Y) 56

**TOSS-UP**

31) MATHEMATICS *Short Answer* What is the value of (3x+4) – 5 if x=2?

ANSWER: 5

**BONUS**

32) MATHEMATICS *Multiple Choice* What is the area of a triangle with side lengths 6, 7, 9 inches?

W) 20 square inches

X) 21 square inches

Y) 22 square inches

Z) 23 square inches

ANSWER: X) 21 SQUARE INCHES

**TOSS-UP**

33)MATHEMATICS *Short Answer* Which of the following is 537 divisible by?

W)3

X)4

Y)7

Z)8

ANSWER: W) 3

**BONUS**

34) MATHEMATICS *Short Answer* What is the value of (5012-5002)?

ANSWER: 1001

**TOSS-UP**

35) MATHEMATICS *Multiple Choice* What is the value of 33+6÷3+2-4?

W) 3

X) 5

Y) 7

Z) 9

ANSWER: Z) 9

**BONUS**

36) MATHEMATICS *Short Answer* What is the area of the region bounded by the point (-6,0) (0,5) (6,0) and (0,-5)?

ANSWER: 60 SQUARE UNITS

**TOSS-UP**

37) MATHEMATICS *Short Answer* What is log6 216?

ANSWER: 3

**BONUS**

38) MATHEMATICS *Short Answer* What is the slope of the line whose x intercept is 6 and y intercept is 2?

ANSWER: -1/3

**TOSS-UP**

39) MATHEMATICS *Multiple Choice* What is the volume of a cube with sides 4√3?

W) 16√3 cubic units

X) 48 cubic units

Y) 192√3 cubic units

Z) 586 cubic units

**BONUS**

40) MATHEMATICS *Short Answer* What is the volume of a square pyramid with surface area 33 square units and height 4 units?

ANSWER: 12 cubic units

**TOSS-UP**

41) MATHEMATICS *Multiple Choice* What is 2561/4 – 5?

W) -1

X) 1

Y) 4

Z) 37

**BONUS**

42) MATHEMATICS *Short Answer* What is the magnitude of the complex equation 21+28i?

ANSWER: 35

**TOSS-UP**

43) MATHEMATICS *Short Answer* What is (x+3)3 if x=9?

ANSWER: 1728

**BONUS**

44) MATHEMATICS *Multiple Choice* What is the area of a one fourth of the circle if the radius is equal to 2.5y?

W) 1.5625yπ square units

X) 6.25yπ square units

Y) 15.625yπ square units

Z) 625yπ square units

**TOSS-UP**

45) MATHEMATICS *Short Answer* If the value of √x = 3, then what is the value of x3-43?

ANSWER: 665

**BONUS**

46) MATHEMATICS *Multiple Choice* What is the solution to the system x=4, y=x-2, and y+5=7?

W) (4, 5)

X) (4, 7)

Y) (3, 5)

Z) (4, 2)

ANSWER: Z) (4, 2)

**TOSS-UP**

47) MATHEMATICS *Short Answer* What is the factored version of (a2-b2)2?

ANSWER: a4-2a2b2+b4

**BONUS**

48) MATHEMATICS *Short Answer* What is the radius of a sphere if the volume is 4/3π3r6 cubic inches?

ANSWER: πr3 inches

**TOSS-UP**

49) MATHEMATICS *Multiple Choice* What is the value of 2÷4÷10?

W) 1/20

X) 1/5

Y) 1

Z) 2

ANSWER: W) 1/20

**BONUS**

50) MATHEMATICS *Short Answer* How many solutions does the quadratic x2+3x+5 have?

ANSWER: ZERO