1.

Who is the father of the study of dynamics – the study of motion?

(A)

Albert Einstein

(B)

Isaac Newton

(C)

Nikola Tesla

(D)

Stephen Hawking

**Answer: Isaac Newton**

2.

Who invented the laws of motion?

(A)

Stephen Hawking

(B)

Nikola Tesla

(C)

Isaac Newton

(D)

Albert Einstein

**Answer: Isaac Newton**

3.

In which year the laws of motion invented?

(A)

1657

(B)

1667

(C)

1677

(D)

1687

**Answer: 1687**

4.

A man in a train in motion is facing the engine. He tosses a coin up, the coin falls behind him. The train is

(A)

moving forward with uniform speed.

(B)

moving forward with acceleration.

(C)

moving backward with uniform speed.

(D)

moving forward with retardation.

**Answer:  moving forward with acceleration.**

5.

A jet plane flying in atmosphere gets reaction from

(A)

gravity

(B)

atmosphere

(C)

gases ejected by the plane

(D)

gravity and atmosphere

**Answer:  gases ejected by the plane**

6.

A fireman wants to slide down a rope. The breaking load for the rope is $34^{th}$ of the weight of the man. With what minimum acceleration should the fireman slide down? Acceleration due to gravity is g.

(A)

$\frac{g}{4}$

(B)

$\frac{g}{2}$

(C)

$\frac{3}{4}$ g

(D)

zero

**Answer:** $\frac{g}{4}$

7.

Ratio of force and acceleration measures:

(a)

inertia

(b)

velocity

(c)

impulse

(d)

momentum

**Answer: inertia**

8.

A shell is fired from a canon with a velocity v ms-1 at an angle 6 with the horizontal direction. At the highest point in its path, it explodes into two pieces of equal mass. One of the pieces retraces its path to the canon and the speed of the other piece (in ms-1) just after the explosion is

(a)

v cos θ

(b)

3v cos θ

(c)

2v cos θ

(d)

v2 cos θ

**Answer: 3v cos θ**

9.

The work performed on an object does not depend upon

(a)

the displacement.

(b)

the force applied.

(c)

the angle at which the force is applied to the displacement

(d)

initial velocity of the object.

**Answer: initial velocity of the object.**

10.

Which of the following is the property of Solid?

(A)

Have definite shape

(B)

Have low density

(C)

Can be compressed

(D)

Intermolecular force is less

**Answer: Have definite shape**

11.

Name a technique which is used for separating two or more dissolved solids which are present in a solution in very small quantities?

(A)

Chromatography

(B)

Crystallisation

(C)

Distillation

(D)

Vaporization

**Answer: Chromatography**

12.

A chain of length L and mass M is held on a smooth table with its 1n th part hanging over the edge. The work done in pulling the chain is directly proportional to

(a)

n-3

(b)

√n

(c)

n

(d)

n-2

**Answer: n-2**

13.

A violin string could vibrate with frequency of 1 kHz. The time period is . . . .

(A)

1000 s

(B)

10 s

(C)

0.1 s

(D)

0.001 s

**Answer: 0.001 s**

14.

The wave can propagate without any medium. It is the characteristic of these waves, except . . . .

(A)

Light

(B)

Electromagnetic wave

(C)

Infrared

(D)

Sound wave

**Answer: Sound wave**

15.

A sound wave has a frequency of 50 Hz. If its wavelength is 3 m, calculate its wave speed.

(A)

16.7 m/s

(B)

60 m/s

(C)

75 m/s

(D)

150 m/s

**Answer: 150 m/s**

16.

4180 joules of work raises the temperature of 1 liter water through,

(A)

273K

(B)

100C

(C)

1$^{o}$C

(D)

1 F

**Answer: 1°C**

17.

A certain engine converts 20% of available heat energy into work. Then its efficiency will be:

(A)

0.8

(B)

0.5

(C)

0.6

(D)

0.2

**Answer: 0.2**

18.

A sea breeze occurs during the day when the air over the land is ——————-than the air over the se(A)

(A)

heavier

(B)

hotter

(C)

lighter

(D)

cooler

**Answer: hotter**

19.

The current through a metallic conductor is due to the motion of

(A)

Free Electrons

(B)

Protons

(C)

Neutrons

(D)

Still under controversy

**Answer: Free Electrons**

20.

A magnetic field may:

(A)

Change the velocity of a charged particles

(B)

Change the speed of a charged particle

(C)

Change the K. E. of a charged particle

(D)

Stop a moving charged particle

**Ans: Change the velocity of a charged particles**

21.

A wire having a very high value of conductance is said to be

(A)

Very good conductor

(B)

Moderately good conductor

(C)

An insulator

(D)

No specific criterion available

**Answer: Very good conductor**

22.

What are the units of Force?

(A)

Newtons

(B)

Coulombs

(C)

meters

(D)

Watts

**Answer: Newtons**

23.

What are the units of Charge?

(A)

Newtons

(B)

Coulombs

(C)

meters

(D)

Watts

**Answer: Coulombs**

24.

Which of the following is NOT an insulator?

(A)

Wool

(B)

Plastic

(C)

Gold

(D)

Rubber

**Answer: Gold**

25.

When electric current flows in a wire it produces:

(A)

An electric field

(B)

Magnetic field

(C)

Neither electric field nor magnetic field

(D)

Both electric & magnetic field

**Answer: Magnetic field**

26.

If current in the coil decreases, the strength of the magnetic field:

(A)

Decreases

(B)

Increases

(C)

First increases then decreases

(D)

Eemains unchanged

**Answer: Decreases**

27.

What happens to a moving electron beam when a uniform magnetic field is applied at right angles to it?

(A)

The beam is deflected in a circular path

(B)

The beam is deflected in a parabolic path

(C)

The beam starts oscillating

(D)

The beam remains unaffected

**Answer: The beam is deflected in a circular path**

28.

In a semiconductor, the energy gap between the valence band and conduction band is about_____

(A)

5 eV

(B)

10 eV

(C)

15 eV

(D)

1 eV

**Answer: 1eV**

29.

A semiconductor generally has _____ valence electrons

(A)

2

(B)

3

(C)

4

(D)

6

**Answer: 4**

30.

The resistivity of pure germanium under the standard condition is about

(A)

6 × 104 Ω cm

(B)

60 Ω cm

(C)

3 × 10−3 Ω cm

(D)

6 × 10−4 Ω cm

**Answer: 60 Ω cm**

31.

Elements in the same vertical group of the periodic table have same

(A)

Number of valence electrons

(B)

Atomic number

(C)

Atomic mass

(D)

Atomic volume

**Answer: Number of valence electrons**

32.

Which set of elements is listed in order of increasing ionization energy?

(A)

Sb < As < S < P < Cl

(B)

Cl < Sb < P < As < S

(C)

As < Cl < P < S < Sb

(D)

Sb < As < Cl < S < P

**Answer: Sb < As < S < P < Cl**

33.

Which of the following always increases on going from top to bottom in a group?

(A)

Metallic character

(B)

Electronegativity

(C)

Oxidizing power

(D)

The tendency to get reduced

**Answer: Metallic character**

34.

_____ Is The Species with a Bond Angle of 120°.

(A)

PH3

(B)

NCl3

(C)

BCl3

(D)

ClF3

**Answer: BCl3**

35.

_____ Holds The Molecules In a Crystal.

(A)

Electrostatic attraction

(B)

Dipole-dipole attraction

(C)

Hydrogen bond

(D)

Van der Waal’s attraction

**Answer: Van der Waal’s attraction**

36.

Which of These Pairs of Species Have The Same Order of Bond?

(A)

O2-, CN-

(B)

N+, CN+

(C)

CO, NO

(D)

CN-, NO+

**Answer: CN-, NO+**

37.

What is an anode?

(A)

It is the electrode where oxidation takes place.

(B)

It is the electrode where reduction takes place.

(C)

It is an aqueous solution containing an electrode.

(D)

It is the salt bridge that connects half-cells.

**Answer: It is the electrode where oxidation takes place.**

38.

What would be the theoretical cell potential of the previous electrochemical cell?Ag+/Ag = 0.80VNi2+/Ni = -0.25V

(A)

1.05V

(B)

-1.05V

(C)

0.55V

(D)

-0.55V

**Answer: 1.05V**

39.

What is a half-reaction?

(A)

It is a reaction at equilibrium where half of the substances are reactants and half of the substances are products.

(B)

It is the reaction that occurs when the switch of a galvanic cell is open.

(C)

It shows EITHER the reduction component or the oxidation component of a redox reaction.

(D)

It shows BOTH the reduction and oxidation components of a redox reaction.

**Answer: It shows EITHER the reduction component or the oxidation component of a redox reaction.**

40.

What is NOT a property of metals

(A)

brittle

(B)

ductile

(C)

malleable

(D)

conductor

**Answer: brittle**

41.

At room temperature metals are _____.

(A)

plasma

(B)

gases

(C)

liquid

(D)

solid

**Answer: Solid**

42.

What property of metals means that heat and electricity can move easily through?

(A)

luster

(B)

conductor

(C)

malleable

(D)

ductile

**Answer: conductor**

43.

Every sample of matter with uniform properties and fixed composition is called

(A)

Solute

(B)

Solvent

(C)

Solution

(D)

Phase

**Answer: Phase**

44.

Which of the following substance do not show continuous solubility curve?

(A)

KClO4

(B)

Na2SO4. 10H2O

(C)

K2Cr2O7

(D)

PbCl2

**Answer: Na2SO4. 10H2O**

45.

Which has the minimum freezing point?

(A)

One Molal NaCl

(B)

One molal KCl solution

(C)

One molal CaCl2

(D)

One molal urea solution

**Answer: One molal CaCl2**

46.

Which of the following polymer type is not classified on the basis of its application and properties?

(A)

plastics

(B)

rubbers

(C)

synthetic

(D)

fibres

**Answer: synthetic**

47.

Which of the following polymerization is also known as pearl polymerization?

(A)

emulsion polymerization

(B)

suspension polymerization

(C)

solution polymerization

(D)

bulk polymerization

**Answer: suspension polymerization**

48.

Polymer A, also available as copolymer with trifluoroethylene, is a crystalline polymer with a melting point greater than 160 $^{o}$C and is used in coatings and insulation materials. What is the name of polymer A?

(A)

polytetrafluoroethylene

(B)

polyvinyl chloride

(C)

polyvinyl fluoride

(D)

polyvinylidene fluoride

**Answer: polyvinylidene fluoride**

49.

Which of the following is the simplest member of organic compounds?

(A)

Formic acid

(B)

Formaldehyde

(C)

Methane

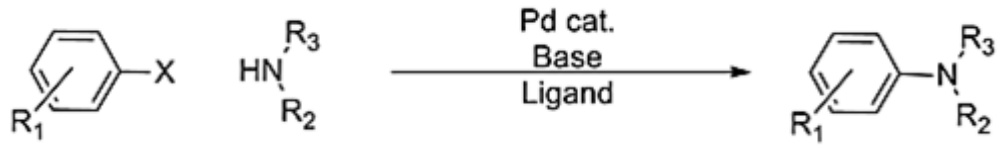
(D)

Methanol

**Answer: Methane**

50.

Which of the following is the known name for the reaction given below?




(where, X=Cl, Br, I, OTf; $R_2$=Alkyl, aryl, H; $R_3$=alkyl, aryl)

(A)

Ullmann reaction

(B)

Gabriel phthalimide synthesis

(C)

Buchwald-Hartwig Reaction

(D)

Chan-Lam coupling

**Answer: Buchwald-Hartwig Reaction**

51.

Which of the following is yielded when Ethylene glycol is treated with phosphorus tri-iodide?

(A)

ethylene di-iodide

(B)

ethylene

(C)

ethane

(D)

ethyl iodide

**Answer: ethylene di-iodide**

52.

The oxidation number of Cl in $Cl_2O_7$ is

(A)

+ 7

(B)

+ 5

(C) + 3

(D) – 7

**Answer: + 7**

53.

The tendency of an electrode to lose electrons is known as

(A)

Electrode Potential

(B)

Reduction Potential

(C)

Oxidation Potential

(D)

E.M.F.

**Answer: Oxidation Potential**

54.

How many millilitres of 0.5 M $H_2SO_4$ are needed to dissolve 0.5 g of copper (II)carbonate?

(A)

6.01

(B)

4.5

(C)

8.1

(D)

11.1

**Answer: 8.1**

55.

The oxidation state of Cr in Cr $(CO)_6$ is

(A)

0

(B)

2

(C)

2

(D)

6

**Answer: 0**

56.

Hydrocarbons are organic compounds with element _____

(A)

Both hydrogen and carbon

(B)

Carbon

(C)

Hydrogen

(D)

Oxygen

**Answer: Both hydrogen and carbon**

57.

When should the measurement of the initiator decomposition be done?

(A)

independent of time

(B)

during polymerization

(C)

before polymerization

(D)

after polymerization

**Answer: during polymerization**

58.

The molal boiling point constant is the ration of the elevation of the boiling point to

(A)

Molarity

(B)

Molality

(C)

More fraction of solvent

(D)

The mole fraction of solute

**Answer: Molality**

59.

What does ductile mean?

(A)

electricity flows easily

(B)

quacks like a duck

(C)

can be drawn into a wire

(D)

able to bend

**Answer: can be drawn into a wire**

60.

What is a standard half-cell?

(A)

It is one cell that comprises half of a whole battery.

(B)

It is a cell containing only a metal bar with no aqueous ion solution.

(C)

It is a cell containing only an aqueous ion solution and no metal bar.

(D)

It is a cell that generates half of a volt of electricity.

**Answer: It is one cell that comprises half of a whole battery.**