1.
A bullet is fired with a speed of 500 m/s in order to hit a target 5 m away. If g = 10 m/s^2, the gun should be aimed

(A)
directly toward the target
(B)
0.06 cm above the target
(C)
0.05 cm above the target
(D)
0.01 cm above the target
Answer: "0.05 cm above the target"

2.
1 Newton = _____

(A)
1 Newton = 1 kg x 1 m/s^2
(B)
1 Newton = 1 kg
(C)
1 Newton = 1 kg x 1 m/s
(D)
1 Newton = m/s^2
Answer: "1 Newton = 1 kg x 1 m/s^2 "

3.
What is the formula to find linear velocity?

(A)
Linear velocity = 2(Mass + Velocity)
(B)
Linear velocity = Mass / Velocity
(C)
Linear velocity = Mass * Velocity
(D)
Linear velocity = Mass – Velocity
Answer: "Linear velocity = Mass * Velocity"

4.
Which is the branch of physics that deals with the motion of a body by considering the cause?

(A)
Statics
(B)
Thermodynamics
(C)
Dynamics
(D)
Astronomy
Answer: “Dynamics”

5.
The work done by a body is 50 kJ, which it attains while reaching a height of 5 m. By what difference has the energy of the body changed?

(A)
50 kJ
(B)
-50 kJ
(C)
25 kJ
(D)
10 kJ
Answer: “50 kJ”

6.
Power is expressed as

(A)
P = dW/dt
(B)
P = F * d
(C)
P = E
(D)
P = dE/dt
Answer: “P = dW/d”

7.
The energy possessed by a body due its position is

(A)
Kinetic Energy
(B)
Potential Energy
(C)
Total Energy
(D)
Position Energy
Answer: “Potential Energy”

8.
Energy involved in creating work _____

(A)
Gets used up
(B)
Gets transferred
(C)
Gets exhausted
(D)
Gets lost
Answer: “Gets transferred”

9.
How fast would a 1 kg bowling ball travel if it had the same kinetic energy as that of the elephant provided the mass of the elephant is 6000 kg and velocity given is 10 m/s?

(A)
1000 m/s
(B)
775 m/s
(C)
625 m/s
(D)
820 m/s

Answer: “775 m/s”

10.
Which among the following liquids, is the good conductor of Heat?

(A)
Water
(B)
Mercury
(C)
Ether
(D)
Alcohol
Answer: “Mercury”

11.
Changing from Solid state to the gaseous state is known as:

(A)
Vapourization
(B)
Crystallization
(C)
Fusion
(D)
Sublimation
Answer: “Sublimation”

12.
A particle executing simple harmonic motion of amplitude 5cm has a maximum speed of 31.4 cm/s. The frequency of its oscillation is?

(A)
4Hz
(B)
3Hz
(C)
2Hz
(D)

1Hz
Answer: “1Hz”

13.
The phase difference between the acceleration of a particle executing simple harmonic motion and the instantaneous velocity is?

(A)
π
(B)
0.707π
(C)
Zero
(D)
0.5π
Answer: “Zero”

14.
An ideal gas passes from one equilibrium state (*P*1, *V*1, *T*1, *N*) to another equilibrium state (2*P*1, 3*V*1, *T*2, *N*). Then

(A)
T1=T2
(B)
T1=T2/6
(C)
T1=6T2
(D)
T1=3T2
Answer: “$T_1 = T_2 / 6$”
15.

The dimension of pressure is
(A)
MLT
(B)
ML-1T-1
(C)
ML-1T-2
(D)

ML-2T-2
Answer: “ML-1T-2”

16.
Normal human body temperature 98.6°F corresponds to

(A)
37°C
(B)
42°C
(C)
55°C
(D)
410°C
Answer: “37°C”

17.
Three equal resistors connected in series with a source of emf together dissipate 10 W of power each. What will be the power dissipated if the same resistors are connected in parallel across the same source of emf?

(A)
40 W
(B)
90W
(C)
100W
(D)
120W
Answer: “90W”

18.
Thermocouples convert

(A)
Heat energy into electrical energy
(B)
Heat energy into light energy
(C)

Heat energy into mechanical energy
(D)
Mechanical energy into heat energy
Answer: “Heat energy into electrical energy”

19.
How much heat does a 40 W bulb generates in one hour?

(A)
144000J
(B)
144J
(C)
1.44J
(D)
14J
Answer: “144000J”

20.
If 1 ampere current flows through 2m long conductor the charge flow through it in 1 hour will be

(A)
3600C
(B)
7200C
(C)
1C
(D)
2C
Answer: “3600C”

21.
A closed surface contains two equal and opposite charges. The net electric flux from the surface will be

(A)
Negative
(B)

Positive
(C)
Zero
(D)
Data is insufficient
Answer: “Zero”

22.
Two similar charges each of one coulomb placed in the air one meter apart repel each other with a force
(A)
9 x 109N
(B)
9.2 x 104N
(C)
9 x 109N
(D)
9 x 107N
Answer: “9 x 109N”

23.
When an electron beam is moving in a magnetic field, then the work done is equal to the

(A)
charge of electron
(B)
magnetic field
(C)
product of electronic charge and the magnetic field
(D)
zero
Answer: “zero”

24.
The phenomenon of electromagnetic induction was first studied by

(A)
Orested
(B)

Ohm
(C)
Michael Faraday
(D)
Einstein
Answer: “Michael Faraday”

25.
Electric generator works on the principle of

(A)
Magnetism
(B)
Electromagnetic induction
(C)
Right hand thumb rule
(D)
Fleming’s left-hand rule
Answer: “electromagnetic induction”

26.
The resistivity of a pure silicon is about ……

(A)
100 Ω cm
(B)
6000 Ω cm
(C)
3×10^{5} Ω m
(D)
6×10^{-8} Ω cm
Answer: “zero”

27.
The impurity level in an extrinsic semiconductor is about ….. of pure semiconductor.

(A)
10 atoms for 10^{8} atoms
(B)

1 atom for 10^8 atoms
(C)
1 atom for 10^4 atoms
(D)
1 atom for 100 atoms
Answer: “1 atom for 10^8 atoms”

28.
Which of the following is a semi-conductor

(A)
Diamond
(B)
Arsenic
(C)
Phosphorous
(D)
Gallium arsenide
Answer: “Gallium arsenide”

29.
The work function of lithium is 2.5 eV. The maximum wavelength of light that can cause the photoelectric effect in lithium is _____

(A)
3980 Å
(B)
4980 Å
(C)
5980 Å
(D)
6980 Å
Answer: “4980 Å”

30.
The magnifying power of an astronomical telescope in normal adjustment is 100. The distance between the objective and the eyepiece is 101 cm. The focal length of the objectives and eyepiece is

(A)

10 cm and 1 cm respectively
(B)
100 cm and 1 cm respectively
(C)
1 cm and 100 cm respectively
(D)
1 cm and 10 cm respectively
Answer: “100 cm and 1 cm respectively”

31.
The period in the current periodic table denotes the value of the following quantities:

(A)
Atomic Number
(B)
Atomic Mass
(C)
Principal Quantum Number
(D)
Azimuthal Quantum Number
Answer: “Principal Quantum Number”

32.
The cation's ionic radius is always _____

(A)
a smaller radius than the radius of its atom
(B)
the atomic radius plus
(C)
equal to the atomic radius
(D)
Impossible to anticipate
Answer: “a smaller radius than the radius of its atom”

33.
Which of the following oxides has the characteristics of an amphoteric?

(A)

SnO_2
(B)
CO_2
(C)
SiO_2
(D)
CaO
Answer: "SnO_2"

34.
The element next to F on Pauling's electronegativity scale is

(A)
N
(B)
Cl
(C)
O
(D)
Ne
Answer: "O"

35.
Out of the following molecules, which one has trigonal planar geometry?
(A)
NH_3
(B)
BF_3
(C)
PCl_3
(D)
IF_3
Answer: "BF_3"

36.
Sp^3d^2 hybridization is present in $[Co(NH_3)_6^{3+}]$, Find its geometry.

(A)
tetrahedral geometry
(B)

square planar geometry
(C)
tetragonal geometry
(D)
octahedral geometry
Answer: “octahedral geometry”

37.
The most polar bond is
(A)
C – F
(B)
C – S
(C)
C – Br
(D)
C – O
Answer: “C – F”

38.
Which of the following substance has a dipole moment more than zero?

(A)
Methane
(B)
Water
(C)
Carbon dioxide
(D)
Nitrogen
Answer: “Water”

39.
Molten NaCl conducts electricity due to the presence of

(A)
Free Electrons
(B)
Free molecules
(C)

Free ions
(D)
Atoms of Na and Cl
Answer: “Free ions”

40.
In a galvanic cell

(A)
Chemical energy is converted into electricity
(B)
Chemical energy is converted into heat
(C)
Electrical energy is converted into chemical energy
(D)
Electrical energy is converted into heat
Answer: “Chemical energy is converted into electricity”

41.
Stronger the oxidizing agent greater is the

(A)
Oxidation potential
(B)
Reduction potential
(C)
Redox potential
(D)
Emf of the cell
Answer: “Reduction potential”

42.
Which has a maximum oxidation number?

(A)
N
(B)
Cr
(C)

S
(D)
Mn
Answer: “Mn”

43.
Which of the following cell is not rechargeable?

(A)
Lead storage battery
(B)
Silver oxide cell
(C)
Fuel cell
(D)
Ni-Cd cell
Answer: “Silver oxide cell”

44.
The non-metal which is liquid at room temperature is:

(A)
Mercury
(B)
Bromine
(C)
Carbon
(D)
Helium
Answer: “**Bromine”**

45.
The sulphide ores are converted into oxides by heating strongly in the presence of excess air. This process is known as

(A)
Roasting
(B)
Smelting
(C)

Calcination
(D)
Refining
Answer: “Roasting”

46.
In electrolytic refining, the cathode is made up of

(A)
Pure metal
(B)
Impure metal
(C)
Alloy
(D)
Metallic salt
Answer: “Pure metal”

47.
What is camphor in N_2 gas an example of?

(A)
Solid in liquid solution
(B)
Liquid in gas solution
(C)
Solid in gas solution
(D)
Gas in gas solution
Answer: “Solid in gas solution”

48.
What type of solution is Cranberry glass?

(A)
Emulsion
(B)
Solid sol
(C)

Solid aerosol
(D)
Gel
Answer: “Solid sol”

49.
What is the unit in which atmospheric pollution is measured?

(A)
Volume fraction
(B)
ppm
(C)
Mass percentage
(D)
Volume percentage
Answer: “ppm”

50.
Cellulose acetate is a

(A)
Natural polymer
(B)
Semisynthetic polymer
(C)
Synthetic polymer
(D)
Plasticiser
Answer: “Semisynthetic polymer”

51.
Which of the following is fully fluorinated polymer ?

(A)
Teflon
(B)
Neoprene
(C)

PVC
(D)
Thiokol
Answer: “Teflon”

52.
Nylon-6 is made from

(A)
Butadiene
(B)
Chloroprene
(C)
Adipic acid
(D)
Caprolactam
Answer: “Caprolactam”

53.
Which of the following polymer has ester linkage?

(A)
Nylon-66
(B)
PVC
(C)
Terylene
(D)
SBR
Answer: “Terylene”

54.
Pentane and 2-methyl butane have the same

(A)
Boiling point
(B)
Melting point
(C)

Percentage composition
(D)
Structural formula
Answer: “Percentage composition”

55.
The first organic compound was synthesized in laboratory by

(A)
Wohler
(B)
Kolbe
(C)
Berzelius
(D)
Berthelot
Answer: “Wohler”

56.
Geometric isomerism is usually found in

(A)
Alkanes
(B)
Alkenes
(C)
Alkynes
(D)
Esters
Answer: “**Alkynes”**

57.
Main source of organic compounds is

(A)
Animal
(B)
Fossil
(C)

Coal
(D)
Plants
Answer: “Animal”
58.
How many milliliters 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”

59.
Name the tendency of an electrode to lose electrons.

(A)
Electrode Potential
(B)
Reduction Potential
(C)
Oxidation Potential
(D)
E.M.F.
Answer: “Oxidation Potential”

60.
The oxidation number of Cl in Cl_2O_7 is:

(A)
+ 7
(B)
+ 5
(C)
+ 3
(D)

– 7

Answer: “+ 7”