

ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES

Section -A

Question bank

- Unit of plane angle is
a) Radian b) Steradian c) Meter d) kilogram
- Newton second law the rate change of momentum of a body is directly proportional to the applied .
a) Density b) Temperature c) Force d) Mass
- Charge of an electron is
a) Positive b) Negative c) Neutral d) None of the above
- Velocity
a) Mass /time b) Density/time c) Force/ time d) Displacement /time
- Unit of solid angle is
a) Radian b) Kelvin c) steradian d) Second
- Mole is the
a) Temperature b) Force c) Pressure d) Amount of substance
- Which is Fundamental physical quantity
a) Force b) Mass c) Density d) Acceleration
- Which is derived physical quantity
a) length b) mass c) time d) Force
- One mole of any gas
a) 0.012 kilogram of carbon -12 b) 0.012 kilogram of Hydrogen
c) 0.012 kilogram of Oxygen d) 0.012 kilogram of Nitrogen
- Which is conserve in law of conservation of momentum
a) Energy b) momentum c) Temperature d) Charge
- Force
a) Mass X acceleration b) Mass/ acceleration
c) Mass X distance d) Mass X Volume
- Thermodynamic system is described by using thermodynamic variables

- a) Force, velocity, second b) Mass , density ,length
 c) Velocity , distance ,second d) Pressure, volume, temperature
13. If two bodies or system A and B are separately in thermal equilibrium with a third body C , then A,B are in thermal equilibrium with each other is a
 a) First law of thermodynamics b) Second law of thermodynamics
 c) Zeroth law of thermodynamics d) None
14. Acoustic waves are
 a) sound waves b) light waves c) electromagnetic waves d) none
15. Frequency of visible light range from about
 a) 4×10^{14} HZ to 7×10^{14} HZ b) 8×10^{14} HZ to 10×10^{14} HZ
 c) 13×10^{14} HZ to 14×10^{14} HZ d) 17×10^{14} HZ to 27×10^{14} HZ
16. The force on the electric charge in electric Field
 a) $F=Q+E$ b) $F=Q/E$ c) $F= E/Q$ d) $F=QE$

Section –B

Fill in the blanks

1. Give an example for translation motion _____
2. Give an example for rotational motion _____
3. A gas enclosed in a cylinder fitted with a piston is a _____ system.
4. A water heater is a example of _____ system .
5. A system which can exchange neither mass nor energy with the surroundings is called _____ system.
6. The particle that has no electric charge is called _____
7. The number of protons in the nucleus or the number electrons in the atom is called _____
8. Name of our home galaxy _____
9. Give the names of semiconductors _____
10. Transistors , diodes & ICs are made with _____
11. According to de Broglie the wavelength of matter wave is _____
12. Unit of wavelength is _____

Section –c

1. Force = mass X acceleration. **(True / False)**
2. A car moving in straight at a constant speed ,then net force acting on the body is zero . **(True / False)**
3. Germanium and silicon are conductors . **(True / False)**
4. Macroscopic domain studies the atomic /molecular phenomena. **(True / False)**
5. Every action there is an equal and opposite reaction.
(True / False)
6. Unit of time in FPS, CGS,MKS & SI system is second.
(True / False)
- 7.Sound waves are transverse waves. **(True / False)**
8. Visible light wavelength range about from 700nm to 400nm. **(True / False)**
9. Magnetic lines of forces never intersect with each other . **(True / False)**
10. Charge of electron is positive. **(True / False)**
- 11.Aerodynamics in prove fuel efficiency. **(True / False)**
- 12.Comptan effect emphasize the corpuscular/particle nature of the electron.
(True / False)

Section –D

Very short answer questions

1. State Zeroth law of thermodynamics
2. What is Doppler effect ?
3. State Newton's first law of motion
4. State Newton's second law of motion
5. What is meant by physics ?
6. What is an Unit ?
7. What is fundamental physical quantity give examples ?
8. What is derived physical quantity give examples ?
9. Define one mole ?
10. What are supplementary physical quantities give there units ?
11. What is meant by law of conservation of momentum ?

12. A man weighs 60 kg and is moving with velocity 2m/s. calculate the Linear momentum

Section –E

Matching

- | | |
|---|---|
| 1. Metals emit electrons when suitable frequency of light falls on them | () A) coulomb |
| 2. $\Delta x \cdot \Delta p \geq h/4\pi$ | () B) $-1.6 \times 10^{-19} \text{C}$ |
| 3. Sound waves are | () C) newton |
| 4. X-rays are | () D) 0 |
| 5. One quintal is | () E) Longitudinal Waves |
| 6. One angstrom is | () F) 100 kg |
| 7. Unit of force is | () G) Electron |
| 8. Unit of electric charge is | () H) proton |
| 9. Charge of electron is | () I) 10^{-10}m |
| 10. Charge of neutron is | () J) electromagnetic waves |
| 11. The particle not found in the Nucleus | () K) Photo electric effect |
| 12. The particle that has a positive Charge is called | () L) Uncertainty principle |