

11th Physics

Public Exam

Part II, III ஸ்

All Qns Attend Confirmed

Unit - 2

KINEMATICS

Important 2 mark Questions

1. Explain what is meant by Cartesian coordinate system?

2. Define a vector. Give examples.

3. Define a scalar. Give examples.

4. Differentiate vector and scalar.

6 × 2 = 12 M

6. Write a short note on vector product between two vectors.

7. How do you deduce that two vectors are perpendicular?

6 × 3 = 18 M

10. Define. (a) acceleration (b) Radian (c) Momentum.

11. Define angular displacement and angular velocity.

17. Write down the kinematic equations for angular

13. What is the difference between velocity and average velocity?

14. Explain the difference between speed and velocity. Give example.

Important 2,3 Marks Qn Bank

Unit: 1 Nature of Physical World and Measurement.

- ① Briefly explain the types of physical quantities.
- ② How will you measure the diameter of the Moon using Parallax method?
- ③ Write the rules for determining significant figures. ✖
- ④ What are the limitations of dimensional analysis? ✖
- ⑤ Define precision and accuracy. Example with one example ✖
- ⑥ Write the advantages of the SI unit system. ✖
- ⑦ Define: Ampere ✖
- ⑧ Define: (a) 1 light year (b) 1 astronomical unit ✖
- ⑨ Write the Rules for Rounding off
- ⑩ Write the Applications of dimensional analysis ✖
- ⑪ Differentiate: (a) Dimensional and Dimensionless Variables. ✖
(b) Dimensional and Dimensionless Constant
- ⑫ Example: 1.14, (1.15), (1.16) ✖

Unit - 2KINEMATICSImportant 2 mark Questions

1. Explain what is meant by Cartesian coordinate system?
2. Define a vector. Give examples. ✕
3. Define a scalar. Give examples. ✕
4. Differentiate vector and scalar. ✕
5. Write a short note on the scalar product between two vectors.
6. Write a short note on vector product between two vectors.
7. How do you deduce that two vectors are perpendicular? ✕
8. Define displacement and distance. ✕
9. Define velocity and speed. ✕
10. Define. (a) acceleration (b) Radian (c) Momentum.
11. Define angular displacement and angular velocity.
12. Write down the kinematic equations for angular motion. ✕
13. What is the difference between velocity and average velocity.
14. Explain the types of motion with example.

Task Qn: 3 Unit 3 Laws of Motion

Important 2, 3 Marks Questions:

- ① Explain the Concept of inertia and
- ① What is inertia? Explain the types of inertia with examples.
- ② State (i) Newton's Second law (ii) Newton's third law (iii) Newton's first law (Any one Qns: ✕)
- ③ Define: One Newton.
- ④ Using freebody diagram, show that it is easy to pull an object than to push it. ✕
- ⑤ Explain the various types of friction. Suggest a few methods to reduce friction. ✕
- ⑥ When a cricket player catches the ball, he pulls his hands gradually in the direction of the ball's motion. why? ✕
- ⑦ Show that impulse is the change of momentum. (or) what is impulse? Give example (Any one).
- ⑧ Differentiate: static friction and kinetic friction. ✕
- ⑨ Differentiate: Centripetal force and Centrifugal force ✕
- ⑩ Define: Angle of friction.
- ⑪ Define: Angle of Repose. Write the Applications of Angle of Repose ✕
- ⑫ What are inertial frames?

Centum Marks Task Qns: 4 Important Qns.

Unit: 4. Work, Energy and Power

Important 2, 3, Mark Qns:

- ① Write the Various types of Potential energy. Explain the formulae. ✖
- ② Write the differences between Conservative and Non-Conservative forces. Give two examples each. ✖
- ③ Explain the Characteristics of elastic and inelastic collision.
- ④ Define the following: (a) Coefficient of restitution. ✖
(b) Power (c) Law of Conservation of energy (d) Loss of Kinetic Energy in Inelastic Collision. (e) Energy ✖
- ⑤ Derive the Relation between Momentum and Kinetic Energy. ✖
- ⑥ Differentiate: Work done by a Constant force and Work done by a Variable force. ✖
- ⑦ Derive an expression for Power and Velocity. Give some examples for each. ✖
- ⑧ Example Problems: 4.5, (4.7), 4.13, (4.18), (4.21) ✖
- ⑨ Define: Elastic Potential Energy.
- ⑩ Explain: (i) Force-displacement graph for a spring
(ii) Potential Energy-displacement graph for a spring-mass system.

Centum Marks Task Qns: 5 Important Qns.

Unit: 5. Motion of system of particles and

Rigid Bodies.

Important 2, 3 Marks Qns:

- ① Define: Center of mass *
- ② Define: torque and mention its unit *
- ③ What are the conditions in which force cannot produce torque?
- ④ What is the relation between torque and angular Momentum *
- ⑤ How do you distinguish between stable and unstable equilibrium?
- ⑥ Define: Couple *
- ⑦ State principle of moments *
- ⑧ Define: Center of gravity *
- ⑨ State Conservation of Angular Momentum *
- ⑩ Define: Angular Momentum *
- ⑪ What is the difference between sliding and slipping? *
- ⑫ What is Moment of inertia?
- ⑬ Explain the relationship between Angular Momentum and Angular velocity.
- ⑭ Mention any two physical significance of moment of inertia.

Unit-6. GRAVITATION Important Qns.

Important 2,3 Marks Qns:

- ① State Kepler's three laws. ✕
- ② State Newton's Universal law of gravitation. ✕
- ③ What is meant by escape speed in the case of the Earth? ✕
- ④ What are geostationary and polar satellites? ✕
- ⑤ Define the following concepts: Explain briefly.
(a) The gravitation field (b) Gravitational Potential ✕
Energy (c) gravitation potential (d) Weight.
- ⑥ Why is there no lunar eclipse and solar eclipse every month? ✕
- ⑦ If the Earth's Pull on the Moon suddenly disappears, what will happen to the moon?
- ⑧ Why there is no hydrogen in the Earth's atmosphere?
- ⑨ Earth's atmosphere consists mainly of Nitrogen and Oxygen, but why the hydrogen and Helium are not found in abundance? ✕
- ⑩ What do you mean by the term Weightlessness? Explain the state of weightlessness of a freely falling body.
- ⑪ Why is the energy of a satellite (or any other planet) negative?

Unit 7. Properties of matter - Important Qns.

Important, 2, 3 Marks Qns:

- ① (a) Define: Stress and Strain. (b) Define: Elastic limit.
- ② State Hooke's law of elasticity -X
- ③ Define Poisson's ratio -X
- ④ Which one of these is more elastic, steel or Rubber? why?
- ⑤ State Pascal's law in fluids. -X
- ⑥ State Archimedes principle. -X
- ⑦ State the law of floatation. -X
- ⑧ Distinguish between streamlined flow and turbulent flow. -X
- ⑨ What is Reynold's number? Give its significance. -X
- ⑩ Write down the expression for the Stokes's force and explain the symbol involved in it.
- ⑪ State Bernoulli's theorem -X
- ⑫ Two streamlines cannot cross each other. why?
- ⑬ What are the factors affecting the surface tension of a liquid?
- ⑭ What do you mean by capillarity or Capillary action?
- ⑮ i) why two holes are made to empty an oil tin?
ii) why the passengers are advised to remove the ink from their pens while going up in an aeroplane?
iii) We use straw to suck soft drinks, why?

Unit 8 - Heat and Thermodynamics

Important 2, 3 Marks:

- ① Obtain an ideal gas law from Boyle's law and Charles law.
- ② Define: (a) specific heat capacity and give its unit.
(b) Latent heat capacity and give its unit.
- ③ State Stefan-Boltzmann law - $\dot{X}$ and write its expression.
- ④ What is a thermodynamics system? Give examples.
- ⑤ What are the different types of thermodynamic systems?
- ⑥ State zeroth law of thermodynamics - $\dot{X}$.
- ⑦ What is Wien's law? - $\dot{X}$.
- ⑧ What is PV diagram? - $\dot{X}$.
- ⑨ What is an equation of state? Give an example.
- ⑩ State first law of thermodynamics.
- ⑪ What is meant by a reversible and irreversible process?
- ⑫ Explain the linear expansion of solids. - $\dot{X}$.
- ⑬ State Clausius form of the second law of thermodynamics. - $\dot{X}$.
- ⑭ State Kelvin-Planck statement of second law of thermodynamics. - $\dot{X}$.
- ⑮ State the second law of thermodynamics in terms of entropy - $\dot{X}$.
- ⑯ Explain the thermal expansion of solids, liquids and gas - $\dot{X}$.
- ⑰ Why does heat flow from a hot object to cold object? - $\dot{X}$.

Unit: 9. Kinetic Theory of Gases

Important 2, 3 Marks Questions:

- ① Why moon has no atmosphere? -X
- ② What is the relation between the average kinetic energy and pressure? -X
- ③ Define the term degrees of freedom -X
- ④ State the law of equipartition of energy -X
- ⑤ Define mean free path and write down its expression. -X
- ⑥ Deduce the Boyle's law based on Kinetic theory.
- ⑦ Deduce the Charles's law based on Kinetic theory.
- ⑧ Deduce the Avagadro's law based on Kinetic theory.
- ⑨ List the factors affecting the mean free path -X
- ⑩ What are the factors affecting Brownian motion? -X
- ⑪ What is the reason for Brownian motion?
- ⑫ Write the impacts of V_{rms} in nature? -X

Important 2,3 Marks Qns (Unit 10. Oscillations).

- ① What is meant by periodic and non-periodic motion? Give two examples for each motion. $\times$
- ② What is meant by force constant of a spring?
- ③ Define: (a) Time period of simple harmonic motion.
(b) frequency of simple harmonic motion.
- ④ What is an epoch? $\times$
- ⑤ State the laws of simple pendulum? $\times$
- ⑥ What is meant by free oscillations? $\times$
- ⑦ Explain damped oscillation. Give an example.
- ⑧ Define: forced oscillation. Give an example.
- ⑨ What is meant by maintained oscillation? Give an example.
- ⑩ Explain resonance. Give an example. $\times$
- ⑪ Define: simple harmonic motion.
- ⑫ Write down the time period of simple pendulum.
- ⑬ (a) Write a short notes on two springs connected in series.
(b) Write a short notes on two springs connected in parallel.
- ⑭ Explain the pendulum length due to effect of temperature.

11th Physics Public Exam March 2023.
Important, 2, 3, Marks Qns.

Unit 11. Waves:

- ① a) What is meant by waves? (b) Write down the types of waves.
- ② a) What are transverse waves? Give one example.
b) What are longitudinal waves?
- ③ Differentiate: Transverse Waves and Longitudinal waves? $\times$
- ④ a) Define Wave length (b) Write down the relationship between frequency, wave length and velocity of a wave?
- ⑤ Explain the beat phenomenon.
- ⑥ a) Explain Doppler Effect. $\times$
b) Explain the red shift and blue shift in Doppler Effect? $\times$
- ⑦ Sketch the function $y = x + a$. Explain your sketch.
- ⑧ Write down the factors affecting the velocity of sound in gases.
- ⑨ What is meant by an Echo? Explain.
- ⑩ What is meant by interference of waves.
- ⑪ Discuss how ripples are formed in still water.
- ⑫ Define intensity of sound and loudness of sound.
- ⑬ Write down the characteristics of wave motion. $\times$
- ⑭ Define: (a) Wave length (b) frequency (c) Time Period

kindly send me your key Answers to our email id - padasalai.net@gmail.com

Prepared By

M. Abbas Manthiri

B.sc, B.ed, M.A. M.phil

B.T. Assistant

Science

Ilahi Oriental Arabic high school

Cumbum — Theni dt

More Materials Search //

ilahi high school YouTube Channel

**VIVEKANANDA VIDYALAYA MATRIC. HR SEC. SCHOOL
MADURANTAKAM**

STD: XI

SUB: PHYSICS

GOLDEN QUESTIONS (2 MARKS)

UNIT - I

1. What are the **advantages of SI system?**
2. Define **radian**.
3. State the **principle of homogeneity of dimensions**.
4. What are the **uses of dimensional analysis?**
5. Check the correctness of the equation $V = u + at$
6. Check the correctness of the equation $\frac{1}{2}mv^2 = mgh$

UNIT - II

1. Differentiate **scalar and vector** quantity.
2. Differentiate **distance and displacement**.
3. What is meant by **retardation?**
4. Define **angular displacement & angular velocity**.
5. Write down the **kinematic equations for angular motion**.

UNIT - III

1. State **Lami's theorem**.
2. Under what condition will a **car skid on a leveled circular road?**
3. What are **concurrent forces?**

UNIT – IV

1. Compare **conservative & non – conservative forces**.
2. State **law of conservation of energy**.
3. Compare **elastic and inelastic collision**.
4. Define **coefficient of restitution**.

UNIT – V

1. Define **centre of mass**.
2. Define **torque**. Give its **unit**.
3. Give any two **examples of torque** in day to day life.
4. Define **couple**.
5. Define **centre of gravity**.
6. What is **radius of gyration**?
7. State **law of conservation of angular momentum**.

UNIT – VI

1. State **Newton's universal law** of gravitation.
2. Define the **gravitational field**. Give its **unit**.
3. Define **gravitational potential energy**.
4. What is meant by **escape speed** in the case of the earth?
5. Why is the **energy of a satellite negative**?
6. Why is **there no lunar eclipse and solar eclipse every month**?

UNIT – VII

1. Define **stress**.
2. Define **strain**.
3. State **Hooke's law** of elasticity.
4. Define **Poisson's ratio**.
5. Which one of these is **more elastic, steel or rubber**? Why?
6. What do you mean by **up thrust (or) buoyancy**?
7. State the **law of floatation**.
8. Distinguish between **streamlined flow and turbulent flow**.
9. What is **Reynold's number**? Give its **significance**.
10. Define **terminal velocity**.
11. What are the **factors affecting the surface tension of a liquid**?
12. Distinguish between **cohesive and adhesive forces**.
13. Define **angle of contact** for a given pair of solid and liquid.
14. What do you meant by **capillarity (or) capillary action**?

UNIT – VIII

1. Define **specific heat capacity** and give its unit.
2. Define **molar specific heat capacity**.
3. State **Stefan – Boltzmann law**.
4. What is **Wien's law**?
5. State **Zeroth law** of thermodynamics.
6. State the **first law** of thermodynamics.
7. Define the **quasi static process**.
8. What is **PV diagram**?

9. What is **cyclic process**?
10. What is meant by a **reversible and irreversible process**?
11. State **Clausius form** of the **second law** of thermodynamics.
12. Define **heat engine**.
13. State **Kevin – Planck's** statement of **second law** of thermodynamics.
14. State the **second law of thermodynamics** in terms of entropy.
15. Define the **coefficient of performance**.

UNIT – IX

1. Why moon has **no atmosphere**?
2. **No hydrogen in Earth's atmosphere**. Why?
3. State **Boyle's law**.
4. State **Charles's law**.
5. State **Avogadro's law**.
6. Define the term **degrees of freedom**.
7. State the law of **equipartition of energy**.
8. Define **mean free path**.
9. What are the **factors affecting Brownian motion**?

UNIT – X

1. What is meant by **periodic and non-periodic motion**? Give any two examples, for each motion.
2. What is meant by **force constant of a spring**?
3. Define **time period of simple harmonic motion**.

4. Define **frequency of simple harmonic motion**.
5. What is an **epoch**?
6. What is meant by **free oscillation**?
7. Define **forced oscillation**. Give an example.
8. What is meant by **maintained oscillation**? Give an example.
9. What is meant by **resonance**? Give an example.
10. **Soldiers are not allowed** to march on a bridge. Why?

UNIT - XI

1. Compare: **Transverse waves** and **longitudinal waves**
2. Define **wavelength**.
3. What is meant by **interference of waves**?
4. What is **Doppler Effect**?
5. What is meant by **end correction**?
6. What is meant by **an echo**?

**K.VIGNESHWARAN M.Sc., M.Ed.,
PG. Asst. in Physics**

**VIVEKANANDA VIDYALAYA MATRIC. HR SEC. SCHOOL
MADURANTAKAM**

STD: XI

SUB: PHYSICS

GOLDEN QUESTIONS (3 MARKS)

UNIT - I

1. Write a note on **triangulation method**.
2. How will you measure the **distance of moon from earth**?
3. How will you measure the **diameter of the moon** using parallax method?
4. Write a note on **radar method**.
5. Write the **rules for determining significant figures**.
6. Write the **rules for rounding off**.
7. What are the **limitations of Dimensional analysis**?

UNIT - II

1. Derive the equations of **motion for a particle falling vertically**.
2. Derive the equations of **motion for a particle projected vertically**.
3. Derive the expression for **centripetal acceleration**.

UNIT - III

1. State **Newton's three laws**.
2. What are the differences between **static and kinetic friction**.
3. Show that it is **easy to pull** an object than to **push it**.
4. Derive an expression for the **angle of friction**.

5. Show that in an inclined plane, **angle of friction** is equal to angle of repose.
6. Discuss the **banking of tracks**.

UNIT - IV

1. Explain in detail **work done by a constant force**.
2. Derive an relation between **momentum** and **kinetic energy**.
3. Derive an relation between **power** and **velocity**.

UNIT - V

1. Derive an relation between **torque** and **angular acceleration**.
2. Derive an relation between **angular momentum** and **angular velocity**.
3. State and prove **parallel axis theorem**.
4. State and prove **perpendicular axis theorem**.
5. Derive an expression for **kinetic energy in rotation**.

UNIT - VI

1. State **Kepler's three laws**.
2. Explain the **variation of g with altitude**.
3. Explain the **variation of g with latitude**.
4. Derive the **time period of satellite** orbiting the earth.
5. Derive an expression for **energy of satellite**.

UNIT – VII

1. State and prove **Pascal's law** in fluids.
2. State and prove **Archimedes principle**.
3. State and explain **Stoke's law**.
4. Derive the **relation between surface tension and surface energy**.
5. Obtain an expression for the **excess of pressure inside a liquid drop**.
6. Obtain an expression for the **excess of pressure inside a liquid bubble**.
7. Obtain an expression for the **excess of pressure inside a air bubble**.
8. Obtain an **equation of continuity** for a flow of fluid on the basis of conservation of mass.

UNIT – VIII

1. Describe the **anomalous expansion** of water. How is it helpful in our lives?
2. Explain **Joule's experiment** of mechanical equivalent of heat.
3. Derive the expression for **Carnot engine efficiency**.
4. Explain in detail the **working of a refrigerator**.
5. Derive the **work done in an adiabatic process**.
6. Derive the **work done in an isothermal process**.
7. What are the **limitations of the first law of thermodynamics**

UNIT - IX

1. Write down the **postulates of kinetic theory** of gases.
2. What is the relation between the **average kinetic energy and pressure?**
3. Explain in detail the **kinetic interpretation of temperature.**
4. Describe the **total degrees of freedom for monoatomic molecule, diatomic molecule and triatomic molecule.**
5. Derive the **ratio of two specific heat capacities of monatomic, diatomic and triatomic molecules.**

UNIT - X

1. Write down the difference between **simple harmonic motion and angular simple harmonic motion.**
2. Write short notes on the **oscillations of liquid column in U-tube.**
3. State the **laws of simple pendulum?**
4. Explain **damped oscillation.** Give an example.

UNIT - XI

1. What are the **factors affecting speed of sound in gases?**
2. Compare: **progressive waves and stationary waves.**
3. Discuss the **law of transverse vibrations in stretched strings.**

**K.VIGNESHWARAN M.Sc., M.Ed.,
PG. Asst. in Physics**