9th Physics Guess Paper 2025

These guess papers are prepared according to the new paper pattern 2025 issued by the board and based on SLOs.

Your exam paper will be divided as follows:

- **25% Conceptual**
- **75% Knowledge-Based**
- **25% Analytical + Application-Based**

S.No	Most Important Short Questions (Chapter # 1)
1	Write the uses of physical balance.
2	Define screw gauge.
3	Define least count of screw gauge. Also, give its value.
4	Differentiate between sound and light.
5	Differentiate between atomic physics and nuclear physics.
6	Express in scientific notation: (a) 0.00045 (b) 384000000
7	Write the following quantities in standard form: (i) 6400Km (ii) 380000 Km
8	Write an estimate of one day in seconds.
9	What is meant by Brownian motion?
10	Define positive and negative zero error of a screw gauge.
11	Name the types of motion.
12	Pick out the base unit in the following: Watt, Newton, Metre, Ampere, Mole
13	Differentiate between base quantities and derived quantities.
14	Write down two rules to identify significant figures.
15	Define least count of Vernier calipers and write the value of least count of Vernier calipers in centimeters.
16	Define Vernier calipers. Write down the least count of digital Vernier calipers.
17	Why do we need to measure extremely small intervals of time?
18	Write down the names of any four base quantities.
19	How is precision related to the significant figures in a measured quantity?
20	What is a measuring cylinder? Write its uses.
21	What are prefixes? Write one example.
22	Write two factors of significant figures.
23	What is the International System of Units?
24	Define least count and write the least count of Vernier calipers.
25	What is meant by Vernier Constant?
26	Why is a Digital Electronic Balance more accurate than a Beam Balance?
27	Define Nuclear Physics.
28	Write the following quantities in Standard Form: (i) 6400 Km (ii) 380000 Km
29	How to use a stopwatch?
30	Define prefixes. How are these useful?

31	Write down rules to find the significant figures in measurement.
32	Define Physics.
33	What is meant by scientific notation?
34	Define atomic and nuclear physics.
35	Define base units. Also, give two examples.
36	Describe significant figures. Write one example.
37	Estimate the age of 16 years in seconds.
38	Enlist any four laboratory safety equipment.
39	Estimate the age of 16 years in seconds.
40	Enlist any four laboratory safety equipment.
41	What is meant by base units and derived units?
42	Define sound.
43	Define light (optics).
44	What is meant by physical quantities?
45	Define speed and velocity.
46	Write four names of the main branches of physics.
47	What is meant by significant figures of a measurement? Write two examples.

S.No	Most Important Short Questions (Chapter # 2)
1	Differentiate between positive and negative acceleration.
2	A sprinter completes its 100m race in 12s. Find its average speed.
3	Differentiate between rest and motion.
4	Define Kinematics.
5	Define vectors.
6	Define acceleration and write its unit.
7	Define circular motion and give one example.
8	Define speed and write its SI units.
9	Define random motion and write one example.
10	Define uniform velocity.
11	What is meant by Uniform Acceleration?
12	Differentiate between vectors and scalars.
13	When is a body said to be at rest?
14	Convert 1m/s into km/h.
15	Differentiate between Linear Motion and Random Motion.
16	Define Velocity and write its S.I. Unit.
17	What is meant by uniform speed?
18	Define retardation.
19	What is meant by relative motion?
20	Sketch a distance-time graph for a body starting from rest. How will you determine the speed of a body from this graph?
21	Which quantity shows when an object is moving with uniformly changing speed?

22	Define gravitational acceleration and when does the value of "g" become positive and negative?
23	How many types of translatory motion? Write names.
24	Convert 200 km/h into m/s.
25	What was Galileo's view about freely falling bodies?
26	How do riders in a Ferris wheel possess translatory motion but not rotatory motion?
27	Why cannot vector quantities be added and subtracted like scalar quantities?
28	Define acceleration and write its equation.

S.No	Most Important Short Questions (Chapter # 3)
1	What is meant by an isolated system?
2	Define the SI unit of force.
3	What is meant by banking of the road?
4	Differentiate between centripetal force and centrifugal force.
5	What would happen if all friction suddenly disappeared?
6	What is meant by the Atwood machine?
7	Write down the difference between mass and weight.
8	If a book is lying on a table, explain action and reaction.
9	Write down two disadvantages of friction.
10	Write down advantages of friction.
11	State Newton's Third Law of Motion and give one example.
12	Write two methods of reducing friction.
13	Define centripetal force. Give its formula.
14	What would happen if all friction suddenly disappears?
15	Differentiate between Action and Reaction.
16	Define mass and weight.
17	State the law of conservation of momentum.
18	Write two differences between mass and weight.
19	Define Dynamics.
20	Define inertia and momentum.
21	Define Momentum.
22	Define Centripetal Force and write its formula.
23	Define momentum. Write down its SI unit.
24	Write two disadvantages of friction.
25	What is Newton's First Law of Motion?

S.No	Most Important Short Questions (Chapter # 4)
1	Write the principle of moments.
2	State the second condition of equilibrium.
3	Define clockwise and anti-clockwise moment.

4	Why is the height of vehicles kept as low as possible?
5	Define stable equilibrium.
6	State both conditions of equilibrium.
7	Differentiate between the center of mass and center of gravity.
8	What is meant by the principle of moments?
9	When is a body said to be in equilibrium?
10	Define like parallel forces and give an example.
11	What is the first condition for equilibrium?
12	Define torque and write its SI unit.
13	How can a force be resolved into its perpendicular components?
14	Define equilibrium and also give an example.
15	Write the principle of moments.
16	What is meant by the resolution of forces?
17	A force **F** acts at an angle with the X-axis. Write down the equation to find its rectangular components.
18	When is a couple formed?
19	Define like and unlike parallel forces.
20	Define resultant force.
21	Define head-to-tail rule.
22	Define rigid body and axis of rotation.
23	Differentiate between torque and couple.
24	Define a couple with the help of an example.
25	What is meant by a rigid body?
26	Define the resultant of forces.
27	What is meant by moment arm?

S.No	Most Important Short Questions (Chapter # 5)
1	What is a Global Positioning System (GPS)?
2	Define Satellite and write its example.
3	What is the distance of the moon from the Earth, and how much time does it take to complete its cycle around the Earth?
4	What is meant by field force?
5	Write the formula of the orbital velocity of a satellite revolving close to the Earth.
6	How does energy produce by burning fossil fuels?
7	What is meant by the force of gravitation?
8	Why does the value of "g" vary from place to place?
9	What is meant by field force?
10	Why law of gravitation is important to us?
11	What is meant by artificial satellites? Write down their uses.
12	What is GPS?
13	Define geostationary orbit.
14	What is meant by force of gravitation?
15	Why the gravitational force is a non-contact force?
16	What is meant by satellite and natural satellite?

17	Why the communication satellites are stationed at geostationary orbit?
18	Differentiate between natural satellite and artificial satellite.
19	Define gravitational field strength.
20	State Newton's law of gravitation. Write down its equation.
21	What is meant by force of gravitation?
22	On what factors does the orbital speed of a satellite depend?
23	Write the formula to determine the mass of earth.
24	What are Geostationary Satellites?
25	What is the value of the mass of earth?
26	Write two uses of artificial satellites.
27	How the value of 'g' varies with altitude?
28	What are the factors that affect the orbital speed of a satellite?

S.No	Most Important Short Questions (Chapter # 6)
1	What do you know about solar cells?
2	What do you know about solar panels?
3	Define wind energy.
4	Define biomass energy.
5	What is meant by magma?
6	Define gravitational potential energy and write its equation.
7	Velocity of a body of mass 0.5 kg is 20 m/s. Find its Kinetic energy.
8	Define unit of work.
9	What is nuclear energy?
10	What is a solar cell? Write down its uses.
11	Define biomass energy and geothermal energy.
12	Define Kinetic Energy and write its formula.
13	Why is an energy saver lamp better than an electric lamp?
14	How are solar panels formed? Write down their uses.
15	Define watt (unit of power).
16	Define chemical energy. Give two examples.
17	Define elastic potential energy.
18	Define an ideal system. Why is it not possible practically?
19	A body of mass 50 kg is raised to a height of 3m. What is its potential energy?
20	Differentiate between sound energy and light energy.
21	Define kinetic energy and write its equation.
22	What is meant by gravitational field strength?
23	How is percentage efficiency calculated?
24	Differentiate between kinetic energy and potential energy.
25	Write SI unit of work and define this unit.
26	Define work and write its unit.
27	Define energy. Write down its SI unit.
28	Define types of mechanical energy.
29	Write Law of Conservation of Energy.

S.No	Most Important Short Questions (Chapter # 7)
1	Define matter and write the name of its three states.
2	Define tensile strain. Write its formula and units.
3	Where is Pascal's Law applied?
4	Define elasticity and give an example.
5	Define deforming force and elasticity.
6	Describe Archimedes' principle.
7	Define density and write its SI unit.
8	Define heat. Write down its SI unit.
9	State Pascal's Law. Write down applications in daily life.
10	Define pressure and also write its SI unit.
11	Define Young's modulus.
12	What is meant by elastic limit?
13	Write the principle of flotation.
14	Does there exist a fourth state of matter? What is it?
15	Define density and write its unit.
16	Write four differences between solid and gas state of matter.
17	What is meant by atmospheric pressure?
18	The mass of 1 liter of water is 5 kg. Calculate its density.
19	What is stress? Write down its unit.
20	Write the difference between solid and gas.
21	Write down two important features of the kinetic molecular model of matter.
22	Define strain. Why does strain have no unit?
23	Why does a wooden block float on water?
24	Define plasma and write its two properties.
25	Define density of a substance and write its formula and SI unit.

S.No	Most Important Short Questions (Chapter # 8)
1	How is cooling produced by evaporation?
2	State the two consequences of thermal expansion.
3	Define evaporation.
4	What is the difference between melting point and freezing point?
5	Define volume thermal expansion.
6	Differentiate between temperature and heat.
7	What is a thermometer? Why is mercury preferred as a thermometric substance?
8	Define thermal equilibrium and temperature.
9	Convert 50°C on Celsius scale into Fahrenheit temperature scale.
10	Define Celsius scale of temperature and Kelvin scale of temperature.
11	Write two properties of thermometric liquids.
12	Change 300K on Kelvin scale into Celsius scale of temperature.
13	Convert 100°F into the temperature on Celsius scale.
14	Define specific heat capacity.
15	Write two uses of bimetallic strip.

16	Why does heat flow from a hot body to a cold body?
17	What is meant by clinical thermometer?
18	Define specific heat capacity. Write its formula and S.I. units.
19	Define latent heat of vaporization.
20	What is a thermometer?
21	Define heat capacity.
22	Define latent heat of fusion and latent heat of vaporization.
23	What is meant by absolute zero of temperature?
24	What is the internal energy of a body?
25	Differentiate between heat and temperature.
S.No	**Most Important Short Questions (Chapter # 9)**
1	Write down some measures to save energy in homes.
2	Why does land breeze blow at night?
3	Why are metals good conductors of heat?
4	What is transfer of heat? Write its modes.
5	Why does a glass of chilled water become warm after some time?
6	Define radiation.
7	Write two uses of insulators.
8	Differentiate between conduction and convection.
9	Why does sea breeze blow during the day?
10	What is meant by convection?
11	What is the difference between conduction and convection?
12	What is the greenhouse effect?
13	Write down two factors on which the rate of flow of heat depends.
14	What is the difference between land breeze and sea breeze?
15	How does heat reach us from the Sun?
16	Write two consequences of radiation.
17	Define the radiation mode of heat transfer.
18	Define rate of flow of heat.
19	Write any two uses of convection current.
20	Upon which factors does radiation depend?
21	Write down two uses of good conductors.
22	What is meant by convection current?
23	Differentiate between conductor and insulator.
24	Define conduction.
25	Why does conduction of heat not take place in gases?
26	Describe land breeze and sea breeze.
27	What is the reason a glider remains in the air?
28	Define the rate of flow of heat and write its mathematical form.
29	How does heat reach us from the Sun?
30	Write down any four measures to save energy in homes.
31	Write the use of convection currents.
32	Write down the names of four faces of Leslie cube.
33	Why do we wear white or light-colored clothes in summer?

34	Write three ways of transfer of heat.
35	How does the heat reach us directly from a fireplace?
36	Why does a cup of hot tea become cold after some time?

MOST IMPORTANT LONG QUESTIONS

Question no # 5

S.No	Chapter # 4
1	Find the perpendicular components F_x and F_y of any vector F.
2	What is the center of gravity? Explain how to find the center of gravity of an irregular shaped thin lamina.
3	Define equilibrium and explain its first condition of equilibrium.
4	What is meant by the center of gravity? Where is the center of gravity of a uniform square (g = 10 m/s²)?
5	Define couple. How can you find torque due to a couple?
6	How can a force "F" be resolved into its perpendicular components F_x and F_y?
7	Explain the difference between the center of mass and center of gravity.
8	Define the center of gravity of an irregular shaped thin lamina with the help of an experiment.
9	Define torque. On what factors does it depend?
10	How does the head-to-tail rule help to find the resultant of forces? Write the procedure.

S.No	Chapter # 7
1	Explain the working process of a hydraulic press.
2	What is Young's Modulus? Derive its formula.
3	Prove that pressure in a liquid increases with depth.
4	Take a rubber band. Construct a balance of your own using a rubber band. Check its accuracy by weighing various objects.
5	Explain the application of the principle of flotation with two examples.
6	State Hooke's Law and explain it.
7	State Pascal's law and explain the braking system in vehicles.
8	Prove that upthrust of a liquid = pgh.

Question no # 6

S.No	Chapter # 2

1	Derive the First Equation of Motion by using Speed-time graph.
2	Define motion and explain its types by example.
3	Prove the third equation of motion by using speed-time graph.
4	Define translatory motion and write its types with examples.
5	Explain Scalar and vector quantities and give two examples of each.
6	Prove the third equation of motion using a speed-time graph.
7	Sketch a velocity-time graph for the motion of the body. From the graph, explain each step and calculate total distance covered by the body.
8	Sketch a distance-time graph for a body starting from rest. How will you determine the speed of the body from this graph?
9	What would be the shape of a speed-time graph of a body moving with variable speed?
S.No	Chapter # 5
1	Derive the mass of the Earth.
2	Derive the formula to calculate the orbital speed of an artificial satellite near Earth.
3	Find the mass of the Earth by the law of Gravitation.
4	State and explain the Law of Gravitation.
5	Why could earlier scientists not guess about the gravitational force?
6	Do you attract the Earth or does the Earth attract you? Which one is attracting with a larger force, you or the Earth?
7	Derive the equation of motion for artificial satellites.
S.No	Chapter # 8
1	Define evaporation and explain the factors which affect the evaporation.
2	What is meant by evaporation? On what factors does the evaporation of a liquid depend?
3	Define latent heat of fusion.
4	What is meant by thermal expansion? Explain the volumetric thermal expansion.
5	Explain linear thermal expansion in solids.
6	Define thermal expansion. Deduce the expression for the coefficient of linear thermal expansion of the substance.
7	Define latent heat of vaporization. Explain.
8	Explain three scales of temperature.
9	Write a note on liquid in glass thermometer.
10	Explain the volumetric thermal expansion and also derive its equation.
11	Define Specific heat. How would you find the specific heat of solid?

QUESTION NO. 7

S.No	Chapter # 3
1	State the law of conservation of momentum. Explain it with an example of balls.
2	Explain the collision of two bodies of spherical shapes.
3	Explain the relation between force and momentum.

4	State Newton's 2nd Law of Motion. Also, derive its mathematical equation.
5	State and explain Newton's 2nd Law of Motion. Derive its mathematical equation $F=ma$.
6	State and explain the Law of Gravitation.
7	Define friction and write three methods to reduce friction.
8	Write the advantages and disadvantages of friction.
9	Find the tension and acceleration in a string for vertical motion of two bodies attached to the ends of a string that passes over a frictionless pulley.
10	Prove that the rate of change of momentum of a body is equal to the force applied on it.
11	What is the law of Inertia? Explain.
12	State the second law of motion and derive the equation $F=ma$.
13	Write four differences between mass and weight.

S.No	Chapter # 6
1	Define Kinetic Energy. Derive its equation.
2	Define Potential energy and explain.
3	Why fossil fuels are called non-renewable forms of energy?
4	What do you know about hydrocarbons? Explain them with reactions.
5	What do you know about hydrocarbons? Explain with a reaction.
6	State and explain the Law of Gravitation.
7	How is energy converted from one form to another? Explain.
8	Define work. What is its SI unit? When does a force do work? Explain.
9	What is solar energy? How is energy used in solar house heating?
10	What is nuclear fuel? Write its advantages and disadvantages.
11	Draw and explain any two flow diagrams of energy converters.
12	How are energy and the environment related to each other? Write a detailed note.

Most Important & Repeated Numerical

1	The density of air is 1.3 kg/m³. Find the mass of air in a room measuring 8m x 5m x 4m.
2	A body has a weight of 20N. How much force is required to move it vertically upward with an acceleration of 2 m/s²?
3	A train starts from rest with an acceleration of 0.5 m/s². Find its speed in km/h when it has moved through 100m.
4	A body of mass 50kg is raised to a height of 3m. What is its potential energy?
5	A car starts from rest. Its velocity becomes 20 m/s in 8 seconds. Find its acceleration.
6	The head of a pin is a square of side 10 mm. Find the pressure on it due to a force of 20N.
7	How much heat is required to increase the temperature of 0.5kg of water from 10°C to 65°C?
8	A force is acting on a body making an angle of 30° with the horizontal. The horizontal component of the force is 20N. Find the force component.
9	Convert 100°F into Celsius scale.

10	A train starts from rest. It moves through 1 km in 100 seconds with uniform acceleration. What will be its speed at the end of 100 seconds?
11	A student presses her palm by her thumb with a force of 75N. What would be the pressure under her thumb having a contact area of 1.5 cm²?
12	A body has a weight of 20N. How much force is required to move it vertically upward with an acceleration of 2 m/s²?
13	Calculate the power of a pump, which can lift 200kg of water through a height of 6m in 10 seconds.
14	The weight of a metal spoon in air is 0.48N. Its weight in water is 0.42N. Find its density.
15	The steering of a car has a radius of 16cm. Find the torque produced by a couple of 50N.
16	A balloon contains 1.2m³ air at 15°C. Find its volume at 40°C. The thermal coefficient of volume expansion of air is $3.67\times10^{-3}K^{-1}$.
17	A force of 100N is applied perpendicularly on a spanner at a distance of 10 cm from a nut. Find the torque produced by the force.
18	A wooden cube of sides 10 cm each has been completely dipped in water. Calculate the upthrust of water acting on it.
19	The density of air is 1.3 kg/m³. Find the mass of air in a room measuring 8m × 5m × 4m.
20	A car weighing 12 KN has a speed of 20 m/s. Find its kinetic energy.
21	A stone of mass 500g strikes the ground with a velocity of 20 m/s. How much kinetic energy does the stone have at impact?
22	Write the properties of a thermometric liquid.
23	A wooden block measuring 40cm × 10cm × 5cm has a mass of 850g. Find the density of wood.
24	Estimate your age in seconds.
25	Normal human body temperature is 98.6°F. Convert it into Celsius and Kelvin scales.
26	A train moves with a uniform velocity of 36 km/h for 10 seconds. Find the distance traveled by the train.
27	The density of air is 1.3 kg/m³. Find the mass of air in a room measuring 8m × 5m × 4m.
28	A pump can lift 200kg of water through a height of 6m in 10 seconds. Calculate the power of the pump.
29	A brass rod is 1m long at 0°C. Find its length at 30°C. The coefficient of linear expansion of brass = $1.9\times10^{-5}K^{-1}$.
30	A car has a velocity of 10 m/s. It accelerates at 0.2 m/s² for half a minute. Find the distance traveled and final velocity.
31	Find the acceleration produced by a force of 100N in a mass of 50kg.
32	Calculate the power of a pump that can lift 70kg of water through a vertical height of 16m in 10 seconds. Also, find power in horsepower.
33	How much time is required to change 22Ns momentum by a force of 20N?
34	Determine a force when its perpendicular components are given.
35	A stone of mass 500g strikes the ground with a velocity of 20 m/s. How much kinetic energy does it have at impact?