

Test Jot Series

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Student Name:			Class:	9th
Paper Type:	TestJot Test Series Physics (SNC) Full Book		Subject:	Physics (SNC)
Paper Time:	1 Hour		Maximum Marks:	30

Q1. Choose the correct option.

(6X1=6)

1. The unit of mass is:

(A) Second	(B) Meter	(C) Kilogram	(D) Newton
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2. One giga gram is equal to:

(A) 10^9g	(B) 10^6g	(C) 10^3g	(D) 10^{-6}g
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3. Two rods with length 12.321cm and 10.3cm are placed side by side, the difference in their lengths is:

(A) 2.02cm	(B) 2.0cm	(C) 2cm	(D) 2.021cm
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4. The least count of screw gauge is:

(A) 1cm	(B) 0.001m	(C) 0.01mm	(D) 1mm
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5. A displacement can is used to measure:

(A) Mass of a liquid	(B) Mass of a solid	(C) Volume of a liquid	(D) Volume of a solid
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6. Rounding off 2.512 to 2 significant figures is:

(A) 2.51	(B) 2.52	(C) 2.5	(D) All of above
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Q2. Write down short answers of following questions.

(7X2=14)

[i] Define base quantities with example.	[ii] Why is screw gauge measures more accurately than a Vernier Calipers?
[iii] Why measuring cylinder is used?	[iv] State the number of significant figures in each measurement. (i) 0.00027 (ii) 2.07852 (iii) 0.00152 (iv) 2.7×10^{32}
[v] Difference between precision and accuracy.	[vi] Write a use and accuracy of atomic clock.
[vii] Write a use and accuracy of radioactive decay clock.	

Q3. Write detailed answers of the following questions.(Answer any 2)

(2X5=10)

1. Identity and explain the reasons for human errors, random errors and systematic errors in experiments.
2. State the number of significant digits in each measurement. (Numerical) (a) 0.0045m (b) 2.047m (c) 3.40m (d) 3.42×10^4
3. Explain precision and accuracy. On which factors accuracy in measurement a physical quantity depends?

Q1. Choose the correct option.**(6X1=6)****1. is a vector quantity.**

(A) Displacement	(B) Mass	(C) Time	(D) Length
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2. The distance covered by an object in unit time is called:

(A) Velocity	(B) Speed	(C) Uniform speed	(D) Variable velocity
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3. Acceleration is a quantity:

(A) Vector	(B) Scalar	(C) Both A and B	(D) None of these
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4. A curved distance-time graph indicates motion.

(A) Uniform	(B) Non-uniform	(C) Accelerated	(D) Decelerated
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5. The x-axis of a speed time graph represents:

(A) Speed	(B) Time	(C) Distance	(D) Velocity
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6. A negative gradient on a speed-time graph indicates:

(A) Acceleration	(B) Deceleration	(C) Uniform motion	(D) Non-uniform motion
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Q2. Write down short answers of following questions.**(7X2=14)**

[i] Define rest with example.	[ii] What is linear motion? Given an example.
[iii] What is meant by uniform speed?	[iv] What is the axis of distance and the axis of time in distance-time graph?
[v] Describe a situation where the area under a speed-time graph would be zero.	[vi] Define gravitation acceleration. Write its value.
[vii] Write a short note on speed of light.	

Q3. Write detailed answers of the following questions.(Answer any 2)**(2X5=10)**

1. What is vibratory motion? Give two examples. Explain the characteristics of vibratory motion.
2. Describe the significance of the gradient of a distance-time graph. Explain how the gradient can be used to determine the speed of an object?
3. A cricket ball is hit so that it travels straight up in the air. An observer notes that it took 3 seconds to reach the highest point. What was the initial velocity of the ball? If the ball was hit 1m above the ground, how high did it rise from the ground? (Numerical Problem)

Q1. Choose the correct option.**(6X1=6)****1. Which fundamental force is responsible for holding atoms together?**

(A) Gravity	(B) Electromagnetism	(C) Strong nuclear force	(D) Weak nuclear force
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2. How many forces are acting on the object in a free body diagram?

(A) Only one force	(B) Only two forces	(C) Multiple forces	(D) No force
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3. What is the term for the product of an objects mass and velocity?

(A) Momentum	(B) Inertia	(C) Friction	(D) Gravity
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4. What is the unit of mass in the SI system?

(A) Kilogram (kg)	(B) Gram (g)	(C) Newton (N)	(D) Joule (J)
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5. What is the principle of mechanical balance?

(A) Electronic sensors	(B) Spring or lever	(C) Gravity	(D) Magnetism
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6. Types of friction are:

(A) Static, kinetic	(B) Static, kinetic, rolling	(C) Kinetic, rolling	(D) Static, rolling
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Q2. Write down short answers of following questions.**(7X2=14)**

[i] Which fundamental force is responsible for holding atoms together?
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[ii] What is the net force in a free body diagram?
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[iii] The force expressed in Newton's second law is a net force. Why is it so?
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[iv] How does an electronic balance measure weight?

[v] Why is friction important in our daily life?
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[vi] What happened to momentum when velocity increases?

[vii] What happens to the total momentum of close system?

Q3. Write detailed answers of the following questions.(Answer any 2)**(2X5=10)**

1. Explain the concept of changed particle and describe the electromagnetism forces.
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2. Describe the motion of a block on a table taking into account the friction between the two surfaces. What is the static friction and kinetic friction?

3. A $6.5 \times 10^3 \text{ kg}$ bogie of a goods train is moving with a velocity of 0.8 ms^{-1} Another bogie of mass $9.2 \times 10^3 \text{ kg}$ coming from behind with a velocity of 1.2 ms^{-1} collides with the first one and couples to it. Find the common velocity of the two bogies after they become coupled. (Numerical Problem)

Q1. Choose the correct option.**(6X1=6)****1. Force produces in a body.**

(A) Acceleration	(B) Velocity	(C) Deceleration	(D) Both A and C
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2. Condition for equilibrium of unlike parallel forces?

(A) Equal in magnitude	(B) Unequal in magnitude	(C) Perpendicular	(D) Parallel
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3. Forces can be added using:

(A) Triangle law	(B) Parallelogram law	(C) Polygon law	(D) All of these
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4. During rotation the particles of rigid body rotate along:

(A) Centre	(B) Fixed circles	(C) Line of action	(D) Their direction
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5. Torque of force is zero when the line of action of force passes through the:

(A) Centre	(B) Bottom	(C) Axis of rotation	(D) Top
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6. A force of 10N acts at a distance of 2m from the fulcrum. What is the moment of the force?

(A) 10Nm	(B) 20Nm	(C) 30Nm	(D) 40Nm
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Q2. Write down short answers of following questions.**(7X2=14)**

[i] Define moment of a force. Prove that $\tau = rF\sin\theta$ where θ is angle between r and F .	[ii] What is the effect of an external force on an object in equilibrium?
[iii] Define second condition of equilibrium.	[iv] What is the purpose of ships ballast?
[v] How does a wider base improve the stability of a cone?	[vi] How can you prove that the centripetal force always acts perpendicular to velocity?
[vii] What happens to the centripetal force when radius decreases?	

Q3. Write detailed answers of the following questions.(Answer any 2)**(2X5=10)**

- Describe the steps involved in resolving a vector into its components. Explain the importance of resolution of vector in physics.
- Explain the important of the principle of moments in real life. Describe how it is used in the design of machines and structures.
- A car is moving around a circular track of radius 50m with a speed of 20ms^{-1} . Calculate the centripetal force acting on the car. (mass of the car =1500kg).

Q1. Choose the correct option.**(6X1=6)****1. SI unit of work done is:**

(A) Weber	(B) Newton	(C) NS	(D) Joule
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2. One joule is equal to:

(A) 1N/1m	(B) 1N×m	(C) 1m/1N	(D) 1N ² /1m ²
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3. A bullet of mass 0.05 kg as a speed of 300ms⁻¹. Its kinetic energy will be:

(A) 2250J	(B) 4500J	(C) 1500J	(D) 1125J
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4. If a car doubles its speed, its kinetic energy will be:

(A) the same	(B) doubled	(C) increased to three times	(D) increased to four times
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5. The kinetic energy of a body of mass 2kg is 25J. Its speed is:

(A) 5ms ⁻¹	(B) 12.5ms ⁻¹	(C) 25ms ⁻¹	(D) 150ms ⁻¹
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6. What is disadvantage of coal-based energy production?

(A) Abundant availability	(B) Low operating cost	(C) Constables air pollution	(D) Renewable and sustainable
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Q2. Write down short answers of following questions.**(7X2=14)**

[i] What is the condition for maximum work?	[ii] What is the work done when force and distance are perpendicular?
[iii] Define kinetic energy. Write its formula	[iv] Is timber or wood renewable source of heat energy? Comment. (Constructed Response Question)
[v] What is an advantage of wind energy production?	[vi] Write the average power of energy saver and tube light.
[vii] How is efficiency related to input and output energy?	

Q3. Write detailed answers of the following questions.(Answer any 2)**(2X5=10)**

1. State the law of conservation of energy. Explain it with the help of an example of body falling from certain height in terms of its potential energy and kinetic energy.
2. Differentiate between renewable and non renewable sources of energy. Give three examples for each.
3. A box of mass 10kg is pushed up along a ramp 15m long with a force of 80N. If the box rises up a height of 5m, what is the efficiency of the system? (Numerical Problem)

Q1. Choose the correct option.**(6X1=6)****1. What is the force applied per unit area called?**

(A) Stress	(B) Strain	(C) Deformation	(D) Elasticity
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2. Which is the application of Hooke's law in a shock absorber?

(A) To absorb shock	(B) To reduce friction	(C) To increase	(D) Non of these
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3. What is the density of water?

(A) 800 kgm^{-3}	(B) 1000 kgm^{-3}	(C) 2400 kgm^{-3}	(D) All of these
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4. What is the formula for pressure in a liquid?

(A) $P = \rho gh$	(B) $P = \rho / gh$	(C) $P = \rho / gh$	(D) $P = \rho h / g$
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5. What is the equivalent of atmospheric (atm) in kilo pascals:

(A) 10.3 kPa	(B) 101.3 kPa	(C) 101 3 kPa	(D) All of these
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6. Which principle is used in the working of a manometer?

(A) Newton's law	(B) Bernoulli's principle	(C) Pascal's law	(D) Boyle's law
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Q2. Write down short answers of following questions.**(7X2=14)**

[i] Define deforming force with example.	[ii] Plot a graph of force against extension.
[iii] Why animals like deer who run fast have a small area of the foot?	[iv] How does the pressure of the atmosphere change with altitude?
[v] How does atmospheric pressure change with altitude?	[vi] How does altitude affect atmosphere pressure?
[vii] Write an example which applied Pascal's law.	

Q3. Write detailed answers of the following questions.(Answer any 2)**(2X5=10)**

1. Derive the formula of stress and strain. Explain the relationship between stress and strain.
2. Derive the equation for the force applied to a spring in terms of its spring constant extension. Explain the significance of this equation.
3. When a solid of mass 60g is lowered into a measuring cylinder, the level of water rises from 40 cm^3 to . Calculate the density of the solid. (Numerical Problem)

Q1. Choose the correct option.**(6X1=6)****1. How many properties matter have?**

(A) Two	(B) Three	(C) Four	(D) Five
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2. Which state of matter can be squeezed into smaller volume?

(A) Solid	(B) Liquid	(C) Gas	(D) Plasma
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3. What is heat?

(A) Form of energy	(B) Form of matter	(C) Form of radiation	(D) Form of conduction
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4. The value of absolute zero is:

(A) 260°C	(B) 283.15°C	(C) 273.15°C	(D) 290°C
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5. What is linearity in a thermometer?

(A) Direct relationship	(B) Indirect relationship	(C) Random relationship	(D) No relationship
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6. What is freezing point of water on the Fahrenheit scale?

(A) 0°F	(B) 32°F	(C) 100°F	(D) 12°F
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Q2. Write down short answers of following questions.**(7X2=14)**

[i] What is the main postulates of the kinetic theory of matter?	[ii] What is the concept of pressure in the kinetic theory of matter?
[iii] Discuss whether the Sun is matter. (Constructed Response Question)	[iv] Why are there no negative numbers on the Kelvin scale? (Constructed Response Question)
[v] What do you mean by the linearity of a thermometer?	[vi] Why linearity is important for a thermometer?
	[vii] What is the main component of a liquid-in-glass thermometer?

Q3. Write detailed answers of the following questions.**(2X5=10)**

1. What is temperature? How is it measured? Describe briefly the construction of a mercury-in-glass thermometer.
2. What is the concept of thermal energy? Explain how it related to temperature and heat. Provide example to illustrate your answer.
3. At what temperature Celsius and Fahrenheit thermometer reading would be the same? (Numerical Problem)

Q1. Choose the correct option.**(6X1=6)****1. Which of the following is a non-magnetic material?**

(A) Nickel	(B) Cobalt	(C) Brass	(D) Iron
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2. Which of the following is a magnetic material?

(A) Glass bottle	(B) Plastic comb	(C) Iron nail	(D) Copper wire
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3. What is the property of a magnet that allows it to induce magnetism in other materials?

(A) Magnetization	(B) Induction	(C) Attraction	(D) Repulsions
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4. What happens to a temporary magnet when external field is removed?

(A) Become stronger	(B) Become weaker	(C) Loses magnetism	(D) Remain same
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5. What is a magnetic?

(A) Force	(B) Field	(C) Magnet	(D) Energy
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6. What is the unit of magnetic field strength?

(A) Tesla	(B) Gauss	(C) Weber	(D) Ampere
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Q2. Write down short answers of following questions.**(7X2=14)**

[i] What happens when a magnet is brought close to iron filings?	[ii] What is the significance of a north-south alignment of lodestone?
[iii] What is a temporary magnet?	[iv] What is the main characteristic of a temporary magnet?
[v] What is the magnetic field like near a magnet's poles?	[vi] What is the use of permanent magnets in magnetic resonance imaging (MRI) machines?
[vii] What is the purpose of aligning domains on a magnet?	

Q3. Write detailed answers of the following questions. (Answer any 2)**(2X5=10)**

1. Describe the principle of attraction and repulsion between magnetic poles. how do like and unlike poles interact with each other?
2. Explain the concept of induced magnetism. Describe the process by which a magnet induces magnetism in other materials.
3. Describe the effect of alternating current on a magnet. Explain the principle behind the method of demagnetization.

Q1. Choose the correct option.**(6X1=6)****1. Which field of physics deals with the study of universe?**

(A) Geology	(B) Cosmology	(C) Biology	(D) Chemistry
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2. Which field of physics deals with study of sound?

(A) Acoustics	(B) Optics	(C) Thermodynamics	(D) Electromagnetism
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3. Which field of physics deal with the study of heat?

(A) Thermodynamics	(B) Electromagnetism	(C) Optics	(D) Acoustics
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4. The Branch which deals with the physical aspects of visible light is called:

(A) Cosmology	(B) Optics	(C) Nuclear physics	(D) Thermodynamics
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5. The study of properties of nuclei of the atoms is called:

(A) Astronomy	(B) Nuclear physics	(C) Cosmology	(D) Particles physics
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6. The study of climate change and weather conditions is called:

(A) Computation physics	(B) Biophysics	(C) Climate physics	(D) Geophysics
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Q2. Write down short answers of following questions.**(7X2=14)**

[i] Define quantum mechanics.	[ii] How does interdisciplinary research contribute to sustainable development?
[iii] What is the relationship between an experiment and a hypothesis? (Constructed Response Question)	[iv] What is falsifiability concept? How is it important?
	[v] What is the difference between a hypothesis and a theory?
[vi] Name a technology based on atomic physics principle.	[vii] What is the importance of thermodynamics in automobile technology?

Q3. Write detailed answers of the following questions.(Answer any 2)**(2X5=10)**

1. Describe the scope of physics in technology. Explain how physics is used in the development of computer, smartphones, and other electronic devices.
2. Discuss the role of physics in biology. Explain how physics is used to understand the behavior of living organisms and their interactions with the environment.
3. What are the key considerations for a civil engineer when design a bridge? Discuss importance of safety and cost-effectiveness in engineering projects.