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Chapter 1 : NCERT Solutions for Class 12 Physics in PDF form for session

SPM Form 5 Physics Chapter 2 - Electricity Form 5 Free Notes. 01 Waves; 02 Electricity; Physics Notes and Modules;.

Must focus on the following Chapter 1: Electric Charges and Fields Does the charge given to a metallic sphere depend on whether it is hollow or solid? Give reason for your answer. Electrostatic Potential and Capacitance A 12 pF capacitor is connected to a 50 v battery. How much electrostatic energy is stored in the capacitor? If another capacitor of 6 pf is connected in series with it with the same battery connected across the combination, find the charge stored and potential difference across each capacitor. Depict the equipotential surfaces due to an electric dipole. Current Electricity Derive an expression for drift velocity of electrons in a conductor. A wire whose cross sectional area is increasing linearly from its one end to the other, is connected across a battery of V volts. Which of the following quantities remain constant in the wire? Explain briefly how these rules are justified. The current is drawn from a cell of emf E and internal resistance r connected to the network of resistors each of resistance r as shown in the figure. Obtain the expression for i the current draw from the cell and ii the power consumed in the network. The potentiometer wire, AB, has a total resistance of R0. A voltage V is supplied to the potentiometer. Derive an expression for the voltage across R when the sliding contact is in the middle of potentiometer wire. Moving Charges and Magnetism Describe the working principle of a moving coil galvanometer. Why is it necessary to use i a radial magnetic field and ii a cylindrical soft iron core in a galvanometer? Write the expression for current sensitivity of the galvanometer. Can a galvanometer as such be used for measuring the current? Show that it behaves like a tiny magnetic dipole. Give the significance of negative sign. Electromagnetic Induction A long straight current carrying wire passed normally through the centre of circular loop. If the current through the wire increases, will there be an increase induced emf in the loop? Obtain the expression for the mutual inductance of two long co-axial solenoids S1 and S2 wound one over the other, each of length L and radii r1 and r2 and n1 and n2 number of terns per unit length, when a current I is set up in the outer solenoid S2. Derive the expression for the instantaneous value of the emf induced in the coil. A circular coil of cross-sectional area sq. Calculate the maximum value of the current in the coil. Alternating Current Draw a labelled diagram of a step-up transformer. Obtain the ratio of secondary to primary voltage in terms of number of turns and currents in the two coils. A power transmission line feeds input power at V to a step-down transformer with its primary windings having turns. Find the number of turns in the secondary to get the power output at V. Which one leads in phase: Without making any other change, find the value of the additional capacitor C1, to be connected in parallel with the capacitor C, in order to make the power factor of the circuit unity. Electromagnetic Waves How is the speed of em-waves in vacuum determined by the electric and magnetic fields? Write the expression for the displacement current in terms of the rate of change of electric flux. Ray Optics and Optical Instruments A ray of light incident on face AB of an equilateral glass prism, shows minimum deviation of Calculate the speed of light through the prism. Find the angle of incident at face AB so that the emergent ray grazes along the face AC. Rashmi Singh broke her reading glasses. When she went to the shopkeeper to order new spects, he suggested that she should get spectacles with plastic lenses instead of glass lenses. On getting the new spectacles, she found that the new ones could not offer satisfactory explanation for this. Singh raised the same question to her daughter Anuja who explained why plastic lenses were thicker. Wave Optics Why should the objective of a telescope have large focal length and large aperture? How does one get linearly polarised light with the help of a Polaroid? A narrow beam of unpolarised light of intensity I0 is incident on a Polaroid P1. The light transmitted by it is then incident on a second Polaroid P2 with its pass axis making angle of 60 relative to the pass axis of P1. Find the intensity of the light transmitted by P2. A monochromatic light of wavelength nm is incident normally on a single slit of width 0. Find the angular width of the central maximum obtained on the screen. Dual Nature of Radiation and Matter In the study of photoelectric effect the graph between the stopping potential V and frequency v of the incident radiation on two different metals P and Q is shown below: Atoms Find the wavelength of the electron orbiting in the first exited state in hydrogen atom. The mass number and atomic number of A2 are and 71 respectively.

Determine the mass and atomic number of A4 and A. Briefly explain the use of Zener diode as a dc voltage regulator with the help of a circuit diagram. Communication System Distinguish between a transducer and a repeater. Explain any two factors which justify the need for modulating a low frequency base-band signal.

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Chapter 2 : Physics for SPM: Electric Charge and Electric Field

Physics Form 5 Chapter 5 - Malaysia Syllabus. Form 5 Physics Chapter 5 - Teacher's Copy Chemistry Form 5 Chapter 5 Note.

T Y Objects fall because they are pulled towards the Earth by the force of gravity. A piece of paper does not fall freely because its fall is affected by air resistance. An object falls freely only in vacuum. The absence of air means there is no air resistance to oppose the motion of the object. In vacuum, both light and heavy objects fall freely. They fall with the same acceleration i. The acceleration due to gravity, g. Gravitational field The gravitational field is the region around the earth in which an object experiences a force towards the centre of the earth. This force is the gravitational attraction between the object and the earth. The gravitational field strength is defined as the gravitational force which acts on a mass of 1 kilogram. Newton, N and it is a vector quantity Mass The mass of an object is the amount of matter in the object Weight The weight of an object is the force of gravity acting on the object. Constant everywhere Varies with the magnitude of gravitational field strength, g of the location A scalar quantity A base quantity A vector quantity A derived quantity SI unit: Newton, N The difference between a fall in air and a free fall in a vacuum of a coin and a feather. Both the coin and the feather are released simultaneously from the same height. There is no air resistance. The coin and the feather will fall freely. Only gravitational force acted on the objects. Both will fall at the same time. Both coin and feather will fall because of gravitational force. Air resistance effected by the surface area of a fallen object. The feather that has large area will have more air resistance. The coin will fall at first. The distance between two successive images of the sphere increases showing that the two spheres are falling with increasing velocity; falling with an acceleration. GCKL The two spheres are falling down with the same acceleration The two spheres are at the same level at all times. Thus, a heavy object and a light object fall with the same gravitational acceleration Gravitational acceleration is independent of mass Two steel spheres are falling under gravity. The two spheres are dropped at the same time from the same height. Motion graph for free fall object Free fall object Object thrown upward Example 1 A coconut takes 2. The object will either be 1.

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Chapter 3 : ç¬”è®°ä¸‹è½½ Free Science Notes Download | SmartStudy æ€•æ••ç‰¹åŸ¹è®-ä¸-å¿ƒ

Physics Form 4: Chapter 2 - Momentum Momentum is defined as the product of mass and velocity. The principle of conservation of momentum states that in a system of collision.

Force and motion 1. The SI unit of distance is m metre. The SI unit of displacement is m metre. It is a measure of how fast the distance change in a movement. It is the measure of how fast the displacement change of a moving object. You can take any direction as positive and the opposite as negative. For a linear motion, normally we take the motion to the right as positive and hence the motion to the left as negative. Acceleration Acceleration Acceleration is the rate of velocity change. Acceleration is a vector quantity. It is a measure of how fast the velocity change. The unit of acceleration is ms Equation Additional Notes An object moves with a constant velocity if the magnitude and direction of the motion is always constant. An object experiences changes in velocity if the magnitude of velocity changes the direction of the motion changes. An object that experiences changes in velocity is said to have acceleration. An object traveling with a constant acceleration, a, if the velocity changes at a constant rate. Equation of Uniform Acceleration Most of the motion problems can be solved by the following equations. Therefore, make sure that you memorise all of them. How we know when to use the equation? There are 3 types of motion: Motion with changing acceleration is not in SPM Physics syllabus. It will be discussed in Form 5 add maths. Analysing ticker tape Ticker Timer A ticker-timer consists of an electrical vibrator which vibrates 50 times per second. This enables it to make 50 dots per second on a ticker-tape being pulled through it. The time interval between two adjacent dots on the ticker-tape is called one tick. Uniform Velocity The distance of the dots is equally distributed. All lengths of tape in the chart are of equal length. The object is moving at a uniform velocity. Uniform Acceleration The distance between the dots increases uniformly. The length of the strips of tape in the chart increase uniformly. The velocity of the object is increasing uniformly, i. Uniform Deceleration The distance between the dots decreases uniformly. The length of the strips of tape in the chart decreases uniformly. The velocity of the object is decreasing uniformly, i. Finding Velocity from Ticker Tape Finding Velocity Velocity of a motion can be determined by using ticker tape through the following equation: Finding Acceleration from Ticker Tape Finding Acceleration Acceleration of a motion can be determined by using ticker tape through the following equation: Example 1 The ticker-tape in figure above was produced by a toy car moving down a tilted runway. If the ticker-tape timer produced 50 dots per second, find the acceleration of the toy car. In order to find the acceleration, we need to determine the initial velocity, the final velocity and the time taken for the velocity change. Diagram above shows ticker tape chart that show the movement of the trolley. Every section of the tape contains 5 ticks. If the ticker-tape timer produced 50 dots per second, determine the acceleration of the trolley. Analysing Displacement - Time Graph.

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Chapter 4 : SPM Physics Notes & Exercise/Nota Fizik SPM

Physics Notes (Form Chapter 1) LESSON 1. Understanding Waves Motion. 2. Draw the normal, at the point where the line you drew earlier touches the barrier. The.

The distance between two consecutives points which are in phase Sl unit: The wavelength can also be the distance from one trough to the next trough. The speed of a wave is the distance travelled by a wave per unit of time. Distance travelled by a wave per unit time. Horizontal Vibration of particle is parallel to direction of propagation of wave. Longitudinal wave Particle displacement: Vertical Vibration of particle is perpendicular to the direction of propagation of wave. Transverse wave Wave motion can be represented by i displacement-time graph, and ii displacement-distance graph. The motion of on oscillating spring can be plotted on a displacement against time graph. O is called the equilibrium position. The maximum displacement of a particle of a medium from its equilibrium position. Hertz Hz or s-1 Amplitude, a: The maximum displacement of a particle in a medium from its equilibrium position. The time taken to travel such distance is period. At constant speed, when the frequency increases, the wavelength will decrease. As sound waves propagate in an open ended tube with constant speed, when the frequency decreases, the wavelength will increase. Lesson 4 Damping and Resonance in an Oscillating System By the end of this lesson, you should be able to: Motion of the pendulum. At the start, the pendulum oscillates with maximum amplitude. The amplitude of the oscillation decreases with time and finally stops. Air friction causes the amplitude of the pendulum to decrease, When the pendulum oscillates, it has energy. This energy is used to overcome air friction. As time passes more energy of the pendulum is being used to overcome air friction. This causes the energy of the pendulum to decrease. As a result, the amplitude becomes smaller. The pendulum is said to experience damping. Two identical tuning forks are used for this experiment. Both have the same natural frequency. Only the first tuning fork is made to vibrate. As the first fork begins to vibrate, the surrounding air molecules will begin to vibrate with the same frequency. Energy is transferred to the second fork causing it to vibrate at its natural frequency. When this happens the second tuning fork is said to resonate with the first tuning fork. When resonance occurs, the tuning fork vibrates at maximum amplitude and produces the loudest sound. When the driver pendulum starts oscillating, the paper cone pendulums begin to oscillate. Energy from the driver pendulum is transferred to the paper cone pendulums causing them to oscillate. The paper cone pendulums are oscillating at different amplitudes. Pendulum 3 has the biggest amplitude. Pendulum 3 has the same length and natural frequency as the driver pendulum. Pendulum 3 is said to be in resonance with the driver pendulum. Pendulum 3 receives the most energy and thus oscillates at maximum amplitude. Musical instruments such as the guitar are set into vibration at their natural frequency when a person plucks the guitar string. The guitar string is attached to the sound box of the guitar. The vibrating string forces air particles inside the box to vibrate at the same natural frequency as the string. The sound box resonates with the string and sets more air particles to vibrate thus producing louder sound.

Chapter 5 : EduMission: Physics Form 5: Chapter 2 - Electric Charge

Understanding Wave 2 - Fundamental of Waves (8 Questions) Understanding Wave 3 - Numerical Problems (5 Questions) Phenomena of Wave 1 - Reflection and Refraction (7 Questions).

Chapter 6 : SPM Physics: Form 5: Chapter 2 Electricity

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Chapter 7 : SPM Physics Form 5 - Electromagnetism

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Chapter 8 : SPM Form 5 Physics Chapter 2 - Electricity | SPM Physics Form 4/Form 5 Revision Notes

Notes: Waves Notes (ppt) Extra Notes (with Videos) 1. Introduction to Waves 2. Amplitude, Period, Frequency and Wavelength Post your questions below in the comment box below if you needed any help about the topic of Waves.

Chapter 9 : Notes: Physics Notes (Form Chapter 1)

Physics Form 4 Kertas 1, Pep Akhir Tahun , Ting 4, Trg Kertas 2, Pep Akhir Tahun , Ting 4, Trg Kertas 3, Pep Akhir Tahun EXAM TIPS For your coming monthly test.