



PHYSICS

BOOKS - NAVBODH PHYSICS (HINGLISH)

EXPLANATION, CHARACTERISTICS AND PROPERTIES

Circular Motion

1. Define centrifugal force. Give any two examples.



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Gravitation

1. For a satellite revolving around the earth



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2. Explain why an astronaut in an orbiting satellite has a feeling of weightlessness



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Rotational Motion

1. Law of conservation of angular momentum



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Oscillations

1. Represent graphically the displacement, velocity and acceleration against time for a particle performing linear SHM starting from the positive extreme position. State the conclusions.



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Elasticity

1. Discuss the behaviour of wire under increasing load .



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2. Discuss the behaviour of wire under increasing load .



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Surface Tension

1. Explain the phenomenon of surface tension on the basis molecular theory.



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2. ANGLE OF CONTACT



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3. The angle which the free surface of a liquid filled in a container will make with horizontal if

the container is accelerated horizontally with acceleration $\frac{g}{\sqrt{3}}$ is



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4. Explain the rise of liquid in the capillary on the basis of pressure difference.



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Wave Motion

1. State the principle of superposition of waves.



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2. DOPPLER EFFECT



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Stationary Waves

1. State the principle of superposition of waves.



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2. With neat labelled diagrams, explain the different modes of vibration of a stretched string.



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3. Show that all harmonics are present on a stretched string between two rigid supports.



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4. What are forced vibrations and resonance ?

Show that only odd harmonics are present in an air column vibrating in a pipe closed at one end. A stretched wire emits a fundamental note of frequency 256 Hz. Keeping the stretching force constant and reducing length

of the wire by 10cm, the frequency becomes 320 Hz. Calculate the original length of wire.



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5. Resonance is an example of



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Kinetic Theory Of Gases And Radiation

1. Explain the degrees of freedom for

(i) An atom

(ii) A diatomic molecule.



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2. What is a heat engine? Explain the efficiency of a heat engine.



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3. Explain the blackbody radiation spectrum in terms of wavelength



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4. State any four characteristics of blackbody radiation spectra.



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Wave Theory Of Light

1. Huygen's principle states that



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2. Doppler effect for light is



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3. Name any three application of Doppler's effect ?



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Interference And Diffraction

1. Phenomenon of diffraction occurs



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2. The resolving power of a telescope depends on
on



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1. With the help of neat diagrams, explain how the nonpolar dielectric material is polarised in external electric field of increasing intensity. Define polarisation in dielectrics.



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2. With the help of neat diagrams, explain how the nonpolar dielectric material is polarised in

external electric field of increasing intensity.

Define polarisation in dielectrics.



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3. Explain the concept of a capacitor.



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Current Electricity

1. Explain the principle of a potentiometer.



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Magnetic Effect Of Electric Current

1. State the principle of moving coil galvanometer.



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Magnetism

1. Explain the origin of diamagnetism.



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2. Explain the difference in properties of diamond and graphite on the basis of their structures.



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Electromagnetic Induction

1. What are eddy currents ? Give some applications of eddy currents. How can the eddy currents be minimised ?



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2. Eddy currents are used in



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3. Self induction and Mutual induction





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Electrons And Photons

1. State the characteristics of photoelectric effect



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2. State Einstein's photoelectric equation.
Explain any two characteristics of

photoelectric effect on the basis of this equation.



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Atoms Molecules And Nuclei

1. Draw a neat labelled diagram of a typical X-ray spectrum.

State and explain its important features.



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2. Explain the existence of sharply defined K, and B, characteristic X-rays.



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3. Explain the term nuclear binding energy and express it in terms of mass defect. What is binding energy per nucleon? Write the expression for it



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4. State the nature and any four properties of α -particle.



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5. Give any three properties of β - rays.



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6. State the nature and any four properties of γ -rays.



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Semiconductors

1. Explain with a suitable diagram the concepts of valence band and conduction band.



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2. With a neat labelled diagram of the structure, explain formation of a p-type semiconductor.



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3. Explain the working of a pn-junction diode in forward- and reverse-biased modes.



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4. With a neat labelled diagram, explain the actionn of npn transistor in common base configuration



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5. Explain the conduction process in a junction transistor with a neat labelled diagram.



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6. Explain the elementary idea of an oscillator with the help of a block diagram.



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7. Block diagram of oscillator consists of



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8. Block diagram of oscillator consists of



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9. Defines the following logic gates:

AND



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10. Defines the following logic gates:

OR



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11. Defines the following logic gates:

NOT



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12. Defines the following logic gates:

NAND



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13. Defines the following logic gates:

NOR



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1. Communication channel consist of:



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2. Explain

the two modes of long distance communication.



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3. Explain the terms :

transmitter and



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4. Explain the terms :

Receiver In a Communication System.



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5. What is a channel bandwidth?



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6. Explain the need for modulation.



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7. Sky Wave Propagation



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Assignments

1. Explain the physical significance of moment of inertia and radius of gyration.



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2. Explain the reflection of transverse and longitudinal waves from a denser and a rarer medium.



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