Physics questions for practice (Class 10th)

Chapter # 01

Q1) what is physics and discuss its branches.

Q2) Write four contributions of Muslim scientists.

Chapter # 02

Q1) what are fundamental and derive units? Write some units.

Q2) define standards of length, mass and time.

Q3) define accuracy and error, also its types.

Q3) Write the names of important measurement systems with at least four examples.

Q4) write names of some common measuring instrument with their one use.

Q5) Define error, and its types.

Q7) Define significant figures. Write rules of identifying significant figures.

Solved examples: 2.4

Important problems: 2.2, .2.3, 2.4

Chapter # 03

Q1) define Rest and Motion and also types of motion.

Q2) define the mechanics and also its branches.

Q3) Define the following: scalar, vector, Distance, Displacement, Speed, Velocity, Acceleration and Deceleration or Retardation.

Q4) Differentiate between the following:

- i) Scalar & vector
- ii) Distance & Displacement
- iii) Speed & Velocity

Q5) Derive three equations of motion.

Solved examples: 38, 40, 41

Important problems: 3.1, 3.3, 3.4, 3.6, 3.9, 3.11, 3.12, 3.13

Chapter # 04

Q1) Define the following: Force, Inertia, Newton, Mass, Weight, Tension, Linear Momentum, Isolated Systems, Limiting Friction and Coefficient of Friction.

Q6) Define the following laws: Newton Laws of Motion and Law of Conservation of Momentum.

Q7) Discuss Law of Conservation of Momentum with applications, and also its condition.

Q2) Define friction and its types.

Q3) Write Factors on which force of friction is depend.

Q4) Write advantages and disadvantages of friction.

Q5) Give two methods of reducing friction.

Q8) Differentiate between Mass and Weight.

Q9) Derive the following: Case I, Case II and Newton second Law.

Solved examples: 4.2, 4.5

Important problems: 4.2, 4.3, 4.5, 4.6, 4.7

Chapter # 05

Q1) Define Vector and its types.

Q2) Write methods of vector addition.

Q3) Write methods of vector multiplication.

Q4) Explain Head to Tail Rule.

Q5) What is Trigonometry and also write its ratios.

Q6) Define Resolution of vhector and derive its formulas for rectangular components.

Q7) Explain and derive the addition of two vectors by rectangular component methods.

Solved examples: 5.3, 5.4

Important problems, : 5.5, 5.6

Chapter # 06

Q1) Define parallel forces and its types.

Q2) Define Torque or Moment of Force and write down its unit and formula.

Q3) Define Equilibrium and its types.

Q4) Write down the conditions of equilibrium.

Q5) Describe three states of equilibrium.

Q6) Define the following: Centre of Gravity, Couple and Coplanar Forces.

Q7) Prove that moment of the couple is equal to the product of one of the forces and arm of couple.

Solved examples: 6.6

Important problems, : 6.4, 6.5, 6.6

Chapter # 07

Q1) Define the following: UCM, Centripetal acceleration, Centripetal Force, Centrifugal Force and One Radian.

Q2) Discuss Banking of Road.

Q3) What are the Conditions of UCM.

Q4) Write Factors on which Centripetal Force depend.

Q4) State, explain and derive the Law of Universal Gravitation.

Q5) Determine the Universal Gravitational Constant (G).

Q6) Evaluate the decrement in the value of 'g' with altitude.

Q7) What are Artificial Satellites.

Q8) Discuss orbital velocity and derive its formula.

Q9) Differentiate between 'g' and 'G'.

Important problems, : 7.3, 7.4, 7.6, 7.7

Chapter # 08

Q1) Define Work, its two types and also its formula and unit.

Q2) Define Power, its formula and unit.

Q3) Define Energy and also the types of mechanical energy.

Q4) Define the following: Joule and Watt.

Q6) Discuss inter-conversion of kinetic and potential energy.

Q7) Differentiate between the Kinetic and Potential energy.

Q8) Derive the following: K.E., P.E. and P=F.v

Important problems,: 8.2, 8.3, 8.7, 8.8

Chapter # 09

Q1) Define the following terms: Machine, Effort, Load, Input, Output, M.A. and Efficiency.

Q2) Why are we use machines.

Q3) Discuss kinds of simple machine in detail.

Solved examples: 9.3, 9.4

Important problems,: 9.1, 9.5, 9.6

Chapter # 10

Q1) Define the following: stress, strain, Elasticity, Elastic Limit, Pressure, atmospheric pressure, Surface Tension, buoyant force, viscosity, Co-efficient of viscosity, poise, up-thrust and Pascal.

Q2) State the following: Hook's law for strain and stress, Pascal law and Archimedes principle.

Q3) Write postulates of Kinetic molecular theory.

Q4) Describe application of Pascal principle.

Q5) Define steps of matter.

Q6) Write differences between strain and stress

Q7) Derive the following: Young Modulus, Pressure of liquid and gas and Dragging force.

Solved examples: 10.3, 10.5

Important problems,: 10.4, 10.5, 10.7, 10.8

Chapter # 11

Q1) Define the following: Temperature, Heat, Specific Heat Capacity, Heat Capacity, Latent Heat, Latent Heat of fusion and Latent Heat of vaporization.

Q2) Define Thermal expansion and also its type.

Q3) Define Transmission of Heat and also its different modes.

Q4) Define bimetallic strip and its application in detailed.

Q5) Explain anomalous behavior of water.

Q6) State the following: boyle's law, Charles Law, Law of Heat Exchange and Laws of Fusion.

Q7) Write Difference between Heat and Temperature.

Q7) Derive the following: Linear thermal expansion, volumetric or cubical thermal expansion, **β=3α** and General Gas equation.

Solved examples: 11.3, 11.8, 11.11

Important problems,: 11.1, 11.2, 11.6, 11.7, 11.9, 11.12

Chapter # 12

Q1) Define the following: Periodic Motion, Echo, Speed/Velocity of waves, Audible Frequency Range and Interference.

Q2) Define Simple and second Pendulum.

Q3) State Hook's law and also verify it using Simple Pendulum.

Q4) Define the Following Type of Waves: Longitudinal wave, Transverse, Standing, Traveling and Ultrasonic waves.

Q5) Discuss the following characteristics of wave: Frequency, Time period, Wave length, Amplitude, Node and Antinodes.

Q6) Describe the properties of sound.

Q7) Define the factors on which loudness of sound is depend.

Q8) Write the differences between the following: transverse and longitudinal, musical and Noise sound and constructive and destructive interference.

Q9) Write note on the following: Resonance, Beat , Propagation of sound and simple Harmonic Motion.

Q10) Derive the relation between wave speed and frequency.

Important problems,: 12.2, 12.3 12.5, 12.6, 12.7, 12.8

Chapter # 13

Q1) Define mirror and its type.

Q2) Describe the following terms: Center of Curvature, Radius of curvature, principle axis, pole , focal length, and magnification.

Q3) Discuss reflection of light and its type.

Q4) State laws of reflection

Q5) Discuss the formation of image by the following: plane, concave and convex mirror.

Q6) Write the characteristics of the following: plane, concave and convex mirror.

Q7) Write differences between the following; Real and virtual image and regular and irregular reflection.

Q8) Write four uses of spherical mirror.

Q9) Write a short note on pin hole camera.

Q10) Derive mirror formula.

Important problems: 13.1, 13.4 13.5, 13.6, 13.7,

Chapter # 14

Q1) Define the following: angle of incident, angle of refraction, angle of the prism, angle of deviation and critical angle, power of lens, least distance of distinct vision.

Q2) state snell's law

Q3) Define total internal reflection.

Q4) write applications of total internal reflection.

Q5) Define lenses and its types.

Q6) Describe the following defects of eye's with corrective devices: Short sightedness, long sightedness, astigmatism and lack of accommodation.

Q7) discuss the following optical instrument: camera, human eye, simple microscope or magnifying glass, compound microscope and refracting telescope.

Solved examples: 14.4,14.6, 14.10

Important problems,: 14.2, 14.3, 14.4, 14.5, 14.7

Chapter # 15

Q1) state three different theories related to nature of light.

Q2) define the following: dispersion, rainbow, spectrum and photon

Q3) explain the emission of light by an atom.

Q4) describe different ranges of electromagnetic spectrum.

Q5) explain solar spectrum formed by prism.

Q6) discuss green house effects.

Chapter # 16

Q1) Discuss different type of material on the basis of electrical properties/nature.

Q2) define the following: electric field, electrostatic induction, ampere, volt, ohm, electric capacitor, fuse, emf, coulomb, farad.

Q3) state the following laws: coulomb's law, ohm's law and joules law.

Q4) write the factors on which capacity of capacitor is depend.

Q5) write similarities between electricity and magnetism.

Q6) write three uses of electromagnet.

Q7) Differentiate between the following: serial and parallel capacitor

Q8) derive the following: $W=I^2Rt$, $F=Kq_1q_2/r^2$, $q=cv$, $V=IR$, Series and parallel resistance.

Solved examples: 16.3, 16.6,16.11, 16.14

Important problems,: 16.1, 16.3, 16.5, 16.6

Chapter # 17

Q1) Define the following: magnetic force, solenoid, magnetic field and ferromagnetic

Q2) describe methods of making magnets.

Q3) Explain the process of demagnetization.

Q4) what are electromagnet discuss their application.

Q5) write a note on the following: galvanometer, ammeter and voltmeter

Q6) what is simple electric motor and the factors on which its speed is depend.

Chapter # 18

Q1) define the following: Electronics, PN junction, rectification (rectifier), doping

Q2) Define Semiconductor and its various types (n-type, p-type, intrinsic, etc…).

Q3) Discuss the formation of N-type and P-type Semiconductor.

Q4) what is biasing and describe its types.

Q5) How can we use diode as rectifier in Half wave and in full wave mode, discuss it with the help of circuit diagram.

Q6) Define Transistor, name its two types with symbols, two advantages and also application as an amplifier.

Q7) What is telecommunication, also write short notes on different telecom devices.

Q8) what is Radar, its different types and also some uses.

Q9) differentiate between p-type and N-type semiconductor.

Chapter # 19

Q1) define the following: proton, half Life, radioactivity, Fission Chain Reaction, moderation.

Q2) What is Nuclear Reaction and also its types.

Q3) What is a Nuclear Reactor, show it with labeled diagram, name its different types and also the role of boron rod.

Q4) define radioactive Isotopes with example and also their two uses in industry, agriculture and medicine.

Q5) write properties of each α, β and γ.

Q6) Point out radiation Hazards(names only).

Q7) Write precautions to minimize radiation dangers.

Q8) Write a short note on the following: Atomic Bomb and Hydrogen Bomb.

Q9) write four differences between Fission and fusion.

Important problems,: 19.2, 19.3, 19.4, 16.5