12TH PHYSICS IMP QUESTIONS FOR BOARD EXAM 2026

Chapter 01 Electric Charge and Field

Q1.Write the properties of electric charge?

Q2.Write the principle of quantization of charge?

Q3.What is elementary charge? Write its value?(2023)

Q4.Write Coulomb's law and define unit charge on the basis of this law? (2010)

Q5.Define electric field intensity and find the expression for the electric field intensity due to a point charge?

Q6.Write the properties of electric field lines? (2024)

Q7.What is electric dipole? Find the expression for the intensity of electric field in axial position due to electric dipole? (2018,2020)

Q8.What is electric dipole? Find the expression for the electric field intensity due to electric dipole in the

Equatorial position?(2022)

Q9.What is electric flux? Write its SI unit and dimensional formula?(2013)

Q10.Write Gauss Theorem and prove it?(2015,2017,2019)

Q11. State gauss theorem and obtain an expression for the intensity of the electric field due to a point charge with the help of this theorem? (2010)

Q12. State gauss theorem and derive Coulomb's inverse square law? (2009,2013,2023)

NOTE:- Also prepare numerical questions from this chapter. (2024)

Chapter 02 Electric Charge and Capacitance

Q1.What is electric potential? Find the expression for electric potential at any point due to a point charge?(2000,2005,2007,2017)

Q2. What is electric dipole? Find the expression of electric potential in axial position due to electric dipole? (2010)

Q3.Find the expression of electric potential in equatorial position due to electric dipole?
OR (Prove that the value of potential at any point on the transverse position of an electric dipole is zero) (2014,2016)

Q4.What is equipotential **surface?** Write its properties?(2024)

Q5.What is meant by capacitance of a conductor? Write the factors affecting the capacitance of a conductor? (2023)

Q6.Find the expression for capacitance of an isolated spherical conductor?

Q7.What is a capacitor Find the expression for the capacitance of a parallel plate capacitor. Write the factors affecting the capacitance of a capacitor (2011,2018,2020,2022)

Q8. Find the expression for the capacitance of a parallel plate capacitor when a dielectric medium is partially present between its plates?(2015)

Q9. Establish the formula for equivalent capacitance by making labeled diagrams of capacitors connected in series and parallel? (2012,2019)

Q10.What is a dielectric? Explain polar and non-polar dielectric with examples?(2011)

NOTE:- Prepare numerical questions from this chapter al so.(2024)

Chapter 03 Electric Current

Q1.What is drift velocity? Establish a relation between current density and drift velocity?(2011,2017)

Q2.Write Ohm's law and draw the graph between current and potential difference?(2023) Write the limitations of Ohm's law? (2022)

Q3.What is resistance? Write the factors affecting the resistance of a conductor?

Q4.Write the difference between resistance and resistivity? (2020,2023)

Q5.If the length of a wire is doubled by stretching, then how much will its resistance increase? (2013,2017)

Q6.What is meant by ohmic and non-ohmic resistance. Give example.

Q7.State Kirchhoff's laws and Explain them? (2009,2012,2018,2023)

Q8.Write the principle of Wheatstone Bridge and deduce an expression for **equilibrium** of wheatstone's bridge? (2010,2016,2019,2024)

Q9.What is electric cell, give an example? (2023) Define the internal resistance of a cell? On what factors it depends and how? (2009)

Q10.Write the difierence between electromotive force(emf) and potential difference?(2012,2023)

Q11.Find the relationship between electromotive force E, terminal potential diherence V and internal resistance r of the cell?
(2003,2004,2007,2018,2019,2023,2024)

Note: Also prepare numerical questions from this chapter.

Chapter 04 Moving Charge and Magnetism

Q1.Write Bio-Severt's law and on its basis define the unit of current(ampere)?(2014,2019,2020)

Q2.Write Biol-Savart's law in vector form?(2023)

Q3.Find the expression for the intensity of the magnetic field produced at the center of a circular current carrying coil?(2000,2001,2002,2004,2005,2006,2015)

Q4.Find the expression for the magnetic field intensity at a point on the axis of a circular current carrying coil?(2011,20'18)

Q5.State Ampere's circuit law and prove it?(2024)

Q6.With the help of Ampere's circular law, find the intensity of the magnetic field produced by a straight current carrying wire?

Q7.What is Lorenz force (magnetic force)? (2022) Find the formula of Lorenz force acting on a moving charged particle?

Q8.Write the diherence between electric force and magnetic force?(2009)

Q9.Find the expression for the force between two parallel current carrying conductors? when this force is of attraction and when of repulsion nature?

Q10.How a galvanometer can converted into ammeter and voltmeter?

Q11.Write 4 diherences between ammeter and voltmeter?(2009)

NOTE-Prepare numericals from this chapter also.(2024)

Chapter 05 Magnetism and Matter

Q1.What is magnetic dipole moment? Write the SI unit and dimensional formula?

Q2.What is meant by magnetic moment of current loop?

Q3.Write 4 properties of magnetic field lines?

Q4. Why two magnetic field lines do not intersect each other?

Q5.Write 4 difierences between a current carrying solenoid and a bar magnet?

Q6.Write Gauss's law related to magnetism?(2024)

Q7.Define the following:-

1. Magnetic Flux Density
2. Intensity of Magnetization
3. magnetic permeability
4. Magnetic Intensity
5. Magnetic susceptibility

Q8.Compare the properties of diamagnetic, paramagnetic and ferromagnetic materials?(2018)

Chapter 06 Electromagnetic Induction

Q1.What is magnetic flux? Write its unit. (2020)

Q2. Write Faraday's laws related to electromagnetic induction and obtain the mathematical form of the second law?
(2002,2004,2007,2009,2010,2015,2020,2022)

Q3.Write Lanz's law (2013) and explain how Lenz's law equivalent to the law of conservation of energy? (2019)

Q4. Deduce an expression for motional electromotive force induced a straight conductor moving in any uniform magnetic feild)?(2019,2024)

Q5.What is self•inductance (2023). Write the unit of self-inductance ? Find the expression of energy stored in a current carrying coil? (2020)

Q6. Establish an expression for the self-inductance of a plane circular current carrying coil. On what factors does its value depend? (2010)

Q7.Find the expression for the self-inductance of a long current carrying solenoid?(2013,2015,2016,2018,2023)

Q8. Establish an expression for mutual inductance between two solenoids?(2009,2011)

Q9.Write the difference between self-induction and mutual induction?(2022,2024)

Chapter 07 Alternating Curren

Q1.Write the difference between alternating current and direct current?

Q2. In an alternating current circuit ,only capacitor is present,then draw the circuit diagram and obtain expression for (i)phase difference between current and voltage (ii) capacitive reactance ? (2019)

Q3. In an alternating current circuit, only pure inductance is present, then draw the circuit diagram and find (i) phase difference between current and voltage (ii) inductive reactance?

Q4. Find out in L-C-R circuit:- 1. Electric circuit, 2. Phasor diagram, 3. Resultant voltage, 4. Impedance of the circuit, 5. Phase difference between current and voltage, 6. Resonant frequency (2011,2012,2018,2022,2024)

Q6.Prove in alternating current circuit:-

Pav=VrmsxIrmsxcos$. (2012,2014,2016)

Q7. What is AC dynamo (AC generator)† Describe it under the following headings: - 1. Theory, 2. Labeled diagram, 3.Main parts 4. Working. (2009,2010,2018,2020,2022)

Q8. What is a transformer? Describe the transformer under the following headings: - 1. Theory, 2. Labeled diagram, 3. Transformation ratio, 4. Types of energy loss in transformer. (2011, 2014, 2017, 2019, 2020,2023)

Q9.Difference between step up and step down transformers(2009,2010,2015,2024)

Chapter 08 Electromagnetic Waves

Q1.What is displacement current? Write its expression? (2020)

Q2.What are electromagnetic waves? Write its nature? Write their 4 properties†(2013,2017)

Q3.what is electromagnetic spectrum? Write down the name of different type of electromagnetic waves ?(2019)

Q4.Which are the waves of electromagnetic spectrum having minimum and maximum wavelength?(2016)

Q5. Write the name and one use of the highest frequency electromagnetic wave?(2024)

Q6.Write the discoverer, wavelength range, source and two uses of the following waves:-

1) Gamma Rays(2020)
(2) X-rays (2019)
(3) Ultraviolet rays
(4)Visible light
(5)Infrared rays
(6) Micro waves
(7) Radio waves

Q7. Which waves are called heat waves? In which effect do these waves play an important role in maintaining moderate temperature on the earth? (2024)

Q8. Why is red light used in the dark room of photography?

Q9. Why are the bulbs of lamps giving ultraviolet radiation made of quartz and not glass? (2015)

Q10.Which rays are used to send signals in fog and why?(2014)

Q11.Where is the ozone layer located in the atmosphere? Write its importance? (2009,2015)

Q12.What is greenhouse effect? Explain?(2014,2016)

Chapter 9 Ray Optics

Q1.What is reflection of light? Write the laws of reflection? (2016,2018)

Q2. Write two differences between regular reflection and irregular reflection?(2014)

Q3.Draw the diagram of image formation by a concave mirror when the object is situated between P and F? (2018)

Q4. Establish a relation between the focal length and radius of curvature of a spherical mirror? (2009,2011)

Q5.Find the relation between u,v,f for spherical mirror? (2012,2013)

$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$$

Q6.What is conjugate focus?(2013,2015,2017,2023)

Q7.What is Parallax?(2015,2017)

Q8.What is refraction of light? Write the laws of refraction?

Q9. When a ray of light enters from a rarer medium to a denser medium, what will be the effect on the velocity and frequency of light?(2024)

Q10. On what factors does the refractive index of a medium depend?(2022)

Q11. Write the principle of reversibility of light and prove that:' Type equation here.(2009,2018)

$$_{a}\mu_{w} \times {}_{w}\mu_{g} \times {}_{g}\mu_{a} = 1$$

Q.12What is total internal reflection? Write its conditions and applications?(2020,2024)

Establish a relation between the refractive index of the medium and the critical angle?

On what factors the critical angle depends? (2010, 2011, 2017)

Q13.Establish the formula for refraction of light from a spherical surface (concave spherical refracting surface)?(2009,2012,2013,2015)

$$\frac{\mu - 1}{R} = \frac{\mu}{v} - \frac{1}{u}$$

Q14. Draw the ray diagram of image formation when the object in front of a convex lens is situated between the center and focus of light? (2014)

Q15. Derive the lens maker formula for a thin lens?(2009,2014,2016,2023)

$$\frac{1}{f} = (\mu - 1)[\frac{1}{R_1} - \frac{1}{R_2}]$$

Q16.Deduce the lens formula for a convex lens?(2019)

Q18.Derive the expression for the combined focal length of two thin lenses placed in contact with each other?(2018,2020,2022,2024)

$$\frac{1}{F} = \frac{1}{f_1} + \frac{1}{f_2}$$

Q19.What is meant by linear magnification of a lens?(2016)

Q20.Find the expression to find the refractive index of the material of the prism?(2010,2012,2017,2023)

$$\mu = \frac{\sin\frac{A+\delta_m}{2}}{\sin\frac{A}{2}}$$

Q21. Describe the simple microscope under the following headings:- 1. Diagram of image formation, 2. Expression for magnifying power while 1. Final image is formed at the least distance of distinct vision, 2. Final image is formed at infinity. (2012, 2017, 2019, 2024)

Q22. Describe the compound microscope under the following headings: - 1. Diagram of image formation, 2. Expression for magnifying power while - 1. The final image is formed at the least distance of distinct vision, 2. The final image is at infinity. 3.What will be the length of the microscope tube in this situation?(2009,2011,2014,2016,2018)

Q23. Write 2 diherences in the following:-

1. Compound microscope and astronomical telescope

2. Simple Microscope and Astronomical Telescope (2022)

3. Refracting Telescope and Reflecting Telescope (2023)

NOTE- Prepare numerical questions from this chapter also.

Chapter 10 Wave Optics

Q1.What is wave front?(2024)How many types of wave front are there?

Q2.Explain Huygens' theory of secondary wavelets? (1.definition of wavefront 2.ray diagram of sherical wavefront 3.Emanation of secondary wavelets)? (2010,2012,2019,2024)

Q3.Write the principle of superposition?

Q4.What is interference?(2020) Write the necessary conditions for interference?(2009,2015)

Q5.Derive the expression for fringe width in Young's double slit experiment?(2019)Write the factors affecting fringe width?(2020)

Q6.What is Coherent sources? Write nacessary conditions for two sources of light to be coherent? (2009,2017)

Q7.What is diffraction? Write four differences between interference and diffraction? (2013,2014,2016,2018)

Q8. Define the following:-

1. Unpolarized light and polarized light 2.Polarization of light

(2009,2017)

Q9.What is Polaroid? Describe Polaroid on the basis of the following points:-

1. Working method
2. Two uses (2011, 2018)

Chapter 11 Dual Nature of Radiation and Matter

Q1.What is meant by electron emission? Write its types?

Q2.Explain the following:

1. Thermionic Emissions (2011,2015,2019)
2. Threshold frequency (2011,2014)
3. Work function (2011,2014)

Q3.What is photoelectric effect?(2009,2016,2023)
Write the laws of Photoelectric effect?(2009,2013,2017)

Q4. Write three experimental observations of photoelectric ehect?(2024)

Q5. Write three characteristics of photon?(2024)

Q6.Establish Einstein's equation related to photoelectric emission?(2011,2018,2023)

Q7.What is meant by dual nature of radiation?(2015)

Q8.What are matter waves or de Broglie waves?(2011,2023)
Write Characteristics of matter waves?(2015,2022)

Q9.Establish de-Broglie's wave equation?
(2009,2012,2023)

Q10. Why the wave nature of matter not observed in daily life?

Q11.What is stopping potential?(2020,2022)

Q12.What is the effect of intensity of incident light and frequency of incident light on stopping potential?

Note:- Also prepare numerical questions from this chapter.

Chapter 12 ATOMS

Q1.What is Thomson's Atomic Model (Plum Pudding Model). Write 2 demerits(causes of failure) of thomson's model.

Q2.Describe Rutherford's experiment related to alpha particles scattering under following heads:-

1. Experimental setup,
2. Observation,
3. Conclusion(2024)

Q3.Why only gold leaf is taken for the scattering of alpha particles?

Q4.Who discovered the nucleus model of the atom? draw its diagram?(2020,2023)

Q5.What is Rutherford's atomic mode explain?

Q6. Write two shortcomings of Rutherford's nuclear model and explain how Bohr's model of hydrogen atom overcome these shortcomings? (2024)

Q7.State the postulates of bohr's atomic model?(2019,2023) State two demerits if bohr's model of atoml?

Q8.Prove that the radius of n th bohr's orbit of an atom is proportional to n' ?

Q10.Write the names of five spectral series present in line spectrum of hydrogen atom and explain them briefly.(2020)

Q11.Define the following:-

1. Excitation Energy
2. Ionization Energy

Chapter 13 Nuclei

Q1.What are isotopes? write any two isotopes of hydrogen atom?(2023)

Q2. What are isobars? Give example?(2023)

Q3. What is Isotones? Give example?

Q4.Define the following:-

1. Atomic mass unit
2. Electron Volt
3. Mass defect and its formula
4. Nuclear binding energy
5. Binding energy per nucleon

Q5.What are nuclear forces? write 2Properties of nuclear forces?(2024)

Q6.Compare $\alpha, \beta, \gamma,$ particles?

Q7.What is Radioactivity?(2020)

Q8.What is nuclear fission? Give one example and state the source of energy released in this process?(2020,2024)

Q9.What is nuclear fusion? Give one example and state the source of energy released in this process?(2024) why nuclear fusion possible only at high temperature and very high pressure? (2019)

Q10.Write the difference between nuclear fission and nuclear fusion?

Chapter 14 Semiconductor Electronics

Q1.Write the difference between intrinsic semiconductor and extrinsic semiconductor?(2023)

Q2.Define N and P type semiconductor?
(2019,2022)

Q3.Write the diherence between N and P type semiconductors?
(2013,2014,2022)

Q4.What is PN junction diode?(2022,2023).Explain the working of P-N junction diode with circuit diagram in forward bias and reverse bias?(2017,2019,2022,2024)

Q5.What is rectifiers?Name diherent kinds of rectifiers.Describe the P-N junction diode as an half wave rectifier?(2020,2024)

Q6.What is P-N junction diode ?Describe its use as a full wave rectifier?(2009,2011,2014,2016,2023)