12TH PHYSICS

REDUCED SYLLABUS -2021-2022

IMPORTANT QUESTIONS

(2 MARK ,3 MARK , & 5MARK)

1.ELECTROSTATICS

2 Mark's (BOOK BACK QESTION)

1.State coulomb's law. (B/B-2)
2.State Gauss law. (IN.P.NO - 41)
3.Define electric dipole.Give the expression. (B/B- 8)
4.Define electrostatic potential. (B/B- 10)
5.Define electric flux. (B/B- 15)
6.Define capacitance; Give its unit . (B/B- 20)
7.What is corona discharge? (B/B- 21)
8.Diff b/ w coulomb's force gravitational force? (B/B- 3)

3&5 Mark's

1.Derive expression for the experienced by a dipole due to a uniform electric field. (B/B- 5)
2.Derive an expression for electrostatic potential due to a point charge. (B/B-6)
3.obtatin the expression for electric field due to charged infinite plane sheet. (B/B-12)
4.Energy stored in the capacitor. (B/B- 18)
5.Capacitor series and parallel. (B/B-20)
6,Application of capacitor? (IN.P.NO - 58)

5 Marks

1.Axial line & equatorial line(B/B- 4)
2.Electrostatic potential due to an electric dipole. (B/B-7)
3.Obtain the expression for electric field due to an infinitely long charged wire. (B/B-11)
4.obtain the expression for capacitance for a parllel plate capacitor. (B/B- 19)
5.Expression in details the construction and working of a Van de Graaff generator.(B/B-22)

2.CURRENT ELECTRICITY

2 Mark's

1.Diff b/W drift velocity and mobility. (B/B- 3)
2.Define electrical resistivity. (B/B- 7)
3.Define temp coefficient of resistance. (B/B-8)
4.What is electric power and electric energy? (B/B- 10)
5.What is seebeck effect ? (B/B- 18)
6.What is peltier effect? (B/B-20)
7.What is Thomson effect? (B/B- 19)
8.Critical temperature or transition temperature (IN.P.NO - 99)

3&5 Mark's

1.State Kirchhoff's current rule voltage rule. (B/B- 13,14)
2.State the application of seebeck effect.(B/B-21)
3.Resistance series and parallel(B/B- 3)
4.Explain the determination of the internal resistance of a cell using voltmeter. (B/B- 4)

5 Marks

1.Describe the microscopic model of current and obtain general from of Ohm's law. (B/B- 1)
2.Obtain condition for bridge balance in Wheatstone's bridge. (B/B- 6)
3.Explain the determination of unknown resistance using meter bridge. (B/B- 7)
3.How the emf of two cells are compared using potentiometer. (B/B- 8)

3.MAGNETISM AND MAGNETIC EFFECT OF ELECTRIC CURRENT

2 Marks

1.Define magnetic flux. (B/B- 2)
2.State coulomb's inverse law. (B/B- 4)
3.State ampere's circuital law. (B/B- 8)
4.State Fleming left hand rule. (B/B- 13)
5.Explain concept velocity selector. (B/B- 16)

3&5 Mark's

1.Biot- savart law (IN.P.NO - 162)
2.Magnetic Lorentz force. (B/B-14)
3.Find the magnetic field due to a long straight Ampere's circuital law. (B/B- 7)
4.galvanometer into an ammeter. (B/B- 11)
5.galvanometer to a voltmeter. (B/B- 11)
6.difference between electrifield and magnetic field (IN.P.NO - 163)

5 Mark's

1.Deduce the relation for the magnetic field at a point due to an infinitely long straight conductor carrying current. (B/B- 2)
2.Circular coil carrying current. (B/B-3)
3.Calculate the magnetic field inside and outside of the long solenoid using amperes circuital law (B/B-12)
4.Derive the expression for the force b/w two parallel, current carrying conductors. (B/B- 13)
5.Derive the expression for the a current carrying conductor in a magnetic field. (B/B- 16)

4. ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENT

2 Marks

1.State Fleming right hand rule. (B/B- 4)
2.The advantages of Ac & Dc(IN.P.NO- 266)
3.Mention the ways producing induced emf .(B/B-6)
4.How will you define Q- factor? (B/B- 18)
5.Defenition of Power factor. (B/B- 20)
6.wattles current(B/B- 19)
7.what are phasors(B/B-15)

3&5 Mark's

1.Energy Losses transformer. (B/B- 18)
2.Phase relation b/w resistance. (IN.P.NO-254)

5 Mark's

1.Show that mutual inductance b/w a pair of coil is same (M_{12}= M_{21}) (B/B-11)
2.Show the mathematically that the rotation of a coil in a magnetic field over one a rotation induced an alternative emf of one cycle.(B/B-13)
3.Explain the construction and working of transformer. (B/B- 17)
4.RLC Resistance inductance capacitor(B/B-21)
5.how will you induced emf by canging the encolesed by the coil (B/B- 12)
6.relation b/w pure inductive (B/B-2

5 ELECTROMAGNTIC WAVES

2 Marks

1.What is displacement current? (B/B-1)
2.What are Fraunhofer line. (B/B-6)
3.Write a short notes I) microwave II) X- ray (IN.P.NO-292)
4.Why are e.m waves non – mechanical? (B/B- 8)
5.Two uses i) IR ii) microwave iii) UV radiation (B/B-5)

3&5 Mark's

1.Discuss the Hertz experiment. (B/B- 3)
2.Properties of electromagnetic waves? (B/B-6)

5 Marks.

1.Explain the types of spectrum? Emission spectrum and Absorption spectrum. (B/B-8,9)
2.Write down Maxwell equations in integral form. (B/B- 1)

6 RAY OPTICS

2 Marks

1.What is principle of reversibility? (B/B-7)
2.Why do stars twinkle ? (B/B- 10)
3.How rainbow formed? (B/B- 26)
4.What is Rayleigh scattering? (B/B- 27)
5.Why does sky appear blue? (B/B-28)
6.What is the reason for raffish apperance of sky during sunset and sunrise? (B/B- 29)
7.Why do clouds appear white? (B/B- 30)

3&5 Mark's

1.Derive the relation b/w f and R for a spherical mirror. (B/B-2)
2.What is optical path? (B/B-4)
3.Apparent depth. (B/B- 9)
4.What are critical angle and total internal reflection? (B/B-11)

5 Marks.

1.Derive the mirror equations(B/B-1)
2.Describe the Fizeaud method to determine the speed of light. (B/B- 2)
3.Obtain lens makers formula. (B/B- 7)
4.Derivation the equations for angle of deviation what is despersion? (B/B-9,10)

7 .WAVE OPTICS

2 Mark's

1.State Huygens principle. (B/B- 7)
2 . Define wave front. (B/B-5)
3.Diff b/ w interference and Diffraction(B/B-20)
4.State and obtain Malus law. (B/B-30)
5.State Brewster law. (B/B- 32)

3 Mark's.

1.List the Polaroids. (B/B- 31)
2.What is angle polarization and obtain the equations for angle of polarization. (B/B- 33)
3.Discuss about pile of plates. (B/B- 34)
4.Malus law of proof (B/B-30)

5 Mark's

1.Prove law of reflection using Huygens' principle refractions(B/B-1,2)
2.Youngs double slit experiment. (B/B- 4)
3.single slit (B/B- 7)

8 DUAL NATURE OF RADIATION AND MATTER

2 Mark's

1.Define work function of a metal.give it's unit(B/B- 2)
2.What is photo electric effect? (B/B- 3)
3.How will you define thershold frequency? (B/B-6)
4.What is a photo cell? (B/B- 7)
5.Define stopping potential. (B/B-14)
6.What is surface barrier? (B/B- 15)

3&5 Mark's

1.List out the law of photoelectric effect. (B/B- 5)
2.Photo emissive cell(B/B- 7).
3.List out of the characteristic of photons.(B/B-14)
4.Give the application of photocell. (B/B-15)
5.De Broglie wavelength of electron. (B/B- 11)

5MARKS

1.Briefly explain the principle and working of electron microscope. (B/B- 12)
2.Davisson – Germer experiment. (B/B- 13)
3.Einstein 's photo electric equations. (B/B- 8)
4.characteristics X – ray spectra? (B/B- 16)

9 ATOMIC AND NUCLEAR PHYSICS

2 Mark's

1.Define impact parameter. (B/B- 9)
2.What is meant by excitation energy? (B/B- 5)
3.Define atomic mass unit u. (B/B-14)
4.What is mass defect? (B/B- 16)
5.Define Curie. (B/B- 26)
6.the radius of the fifth orbit of hydrogen atom is $13.25A^0$ calculate the de-broglie wave length of the electron? (IN.P.NO- 153)
7.Calculate the radius of Au_{79}^{197} nucleus ? (IN.P.NO- 165)

3&5 Mark's

1.Write the properties of cathode rays. (B/B- 2)
2.Write down the postulates of Bohr atom model. (B/B- 4)
3.Define the ionization energy and ionization potential. (B/B- 6)
4.Alpha Beta Gamma decay. (B/B- 21)

5 Marks

1.Explain the j.j Thomson experiment. (B/B-1)
2.hydrojen atom Bhor atom model. (B/B- 3)
3.Discus the spectral series of hydrogen atom. (B/B- 4)
4.Obtain the law of radioactivity. (B/B-10)
5.Nuclear reactor (B/B- 15)

10 ELECTRONIC AND COMMUNICATION

2 Mark's

1.what do you mean by doping? (B/B- 3)
2.What is rectification? (B/B- 18)
3.what is modulation? (B/B- 22)
4.What is integrated circuit? (B/B- 21)

3 Mark's.

1.Diff b/w intrinsic semiconductor & Extrinsic semiconductor(B/B-4)
2.Half wave rectifier. (B/B-5)
3.Transitor function as a switch. (IN.P.NO- 222)
4.State and prove De Morgan's first and second theroem. (B/B-12)

5 Mark's.

1.Full wave rectifier(B/B- 4)
2.n- type semiconductor p- type semiconductor (B/B- 1)
3.Amplitude modulation frequency modulation and phase modulation (B/B- 13)

11 RECENT DEVELOPMENT IN PHYSICS

1.Dff b/w Nanoscience and Nonotechnology (B/B- 1)
2.Advantage disadvantage Robitics. (B/B- 4)