Std 12 Unit 1 Sub: Physics

1. Gravitational force arises due to the ……on the surface of the Earth

with the atoms present in the feet of the person.

2. Charging the objects through rubbing is called …… charging.

3. When a glass rod is rubbed against silk cloth, some …… are transferred from

glass to silk.

4. The number of electrons in one coulomb of negative charge is ……

5. The value of k is…….

6. The SI unit if ϵ_0 is……..

7. For vacuum or air, ϵ_r is……. and for all other media ϵ_r ……

8. Coulomb discovered his law by considering the charged spheres in the ……

as point charges.

9. For point charges,…….. is much greater

than…….

10. Relative permittivity of water is……

11. Electrostatic force is…… times greater than coulomb force.

12. SI unit of electric field is……..

13. The number of electric field lines coming out from charge q is…….

14. Unit of electric dipole moment is…….. and it is directed from……. to……

15. Electric dipole moment for a collection of point charges is……..

16. The bond angle in water molecule is……..

17. principle of microwave oven is……

18. Dipole experiences…… and …… in non uniform electric field.

19. Electric potential at point P depends only on the electric field which is due to the ……..... charge q and not on the …….. charge q'.

20. Unit positive charge is brought from infinity to the point P with …….. Velocity because external agency should not impart any …….. to the test charge.

21. The unit of electric potential is ……... the practical unit is ……..

22. At infinity, the electrostatic potential is……

23. Work done to move 2 C charge over a distance of 10 cm is……

24. For a point charge the equipotential surfaces are ……..

25. The electric field is …….. to an equipotential surface.

26. Work done to move a charge in an equipotential surface is ……

27. For a uniform electric field, the equipotential surfaces form ……

28. The electric fied is the…… of potential energy.

29. The potential energy is ……..when the dipole is aligned ……. (θ = ……) to the external electric field and …….. when the dipole is aligned …….. (θ = ……) to the external electric field

30. SI unit of electric flux is……

31. The total electric flux over a closed surface can be ……,……..or……..

32. The electric flux is …….. if the electric field lines enter the closed surface and ……if the electric field lines leave the closed surface

33. The total electric flux through the closed surface depends only on the ……..

34. The total electric flux is independent of ……..

35. The shape of the Gaussian surface to be chosen depends ……..

and ……..

36. The electric field is …….. for a point charge.

37. Electric field due to two parallel charged infinite sheets is……..

38. Electric field inside a spherical shell is……

39. Electric potential inside a spherical shell is……

40. At electrostatic equilibrium, there is no …….. in the conductor.

41. There is no …… inside the conductor.

42. The electric field outside the conductor is ……to the surface of the conductor.

43. The electrostatic potential has the same value …… and…… of the conductor.

44. Charging without actual contact is called ……..

45. Examples for polar molecules……

45. Examples for non polar molecules……

46. For most dielectrics (……..), the Polarisation is directly proportional to the strength of the ……..

47. The dielectric strength of air is……..

48. The dielectric strength of mica is……

49. Unit of capacitance is……

50. Practical units of capacitance are……..

FORMULAE

1. Elelctic field due to a dipole along axial line

2. Electric fied due to a dipole along the equatorial line

3. Electric potential due to a point charge

4. Electric potential due to a dipole

5. Relation between E and v

6. Electrostatic potential energy

7. Potential energy for a system of point charges

8. Electric field due to infinitely long charged wire

9. Electric field due to infinite charged plane sheet

10. electric field inside two oppositely charged plane sheets

11. Electric field outside and on the surface of a spherical shell

12. Polarisability

13. Energy stored in a capacitor

14. Electrostatic energy density

15. Capacitors in series

16. Capacitors in parallel

17. Quantisation of charges

18. Potential energy of a dipole in a uniform electric field

19 Torque on a dipole in a uniform electric field

20. Gauss law

CHAPTER 2

1. Resistance of water is……,dry skin is…… and wet skin is……

2. Core of a carbon resistor is made up of……

3. Tolerance of a resistor if there is no fourth ring is……

4. Transition temperature of mercury is……

5. An alloy of…….. is used for fuses when current rating is below 15 A and when it is above 15 A ……is used.

6. Carbon furnaces produce temperature up to……

7.Melting point of tungsten filament is……

8.The magnitude of emf developed in a thermocouple depends on…….. and……..

9.Positive Thomson effect is observed in……,……,……and……

10. Negative Thomson effect is observed in……,……,…… and……

1. The SI unit of magnetic moment is……

2. The SI unit of magnetic field is……..

3. The SI unit of magnetic flux is……

4. Dimensional formula for magnetic flux is……

5. The CGS unit of magnetic flux is……..

6. 1 weber=…… Maxwell

7. The unit of magnetic flux density is……..

8. The potential energy of a bar magnet is minimum when it is aligned …….. to the external magnetic field.

9. The potential energy of a bar magnet is maximum when it is aligned …….. to the external magnetic field.

10.The unit of reduction factor of tangent galvanometer is……

11.The unit of Magnetising field is……

12.The value of relative permeability of free space is……

13.In isotropic medium μ is a ……..quantity.

14. For non isotropic medium μ is a ……..quantity.

15.The unit of intensity of magnetization is……

16.For isotropic medium, susceptibility is a ……quantity.

17.For isotropic medium, susceptibility is a ……quantity.

18. Superconductors are……materials.

19.The shape of graph drawn between magnetic susceptibility and temperature is ……..

20.Solenoids can be used as……

21.An ideal ammeter has……..resistance

22.An ideal voltmeter has……

23.Protein cryptochromes……..are present in retina of zebra finches.

24. Magnetic declination and inclination for Chennai is……and …….

25. At equator angle of dip is……., Horizontal component is…… and vertical component is……..

26.At magnetic poles, angle of dip is……., Horizontal component is…… and vertical component is……..

27.Pale yellowish Aurora is produced due to……and purplish red aurora is due to……

28.The direction of magnetic moment is from……pole to……pole

29.Examples of natural magnets are……, …….. and……..

30. Spin for proton is……,neutron is…….. and photon is ……

31. Spin is the intrinsic……which does not have a classical analogue.

32. The Exponent of charge and electric field is……

33. The magnetic moment of an electron and the angular momentum are in……direction.

34. Gyro magnetic ratio is given by …… Or …….. and it's value is……

35. Bohr magneton is used to measure …….. and it's value is……

36. Magnitude of magnetic field in the open space interior to the toroid is……., open space exterior to the toroid is …… And inside the toroid is……

37.Work done by Magnetic Lorentz force is……

38. Time period and frequency of cyclotron depend on……

39. Pitch of the helix is……..

40. If $v_0 > V$ The electron is deflected towards……

41. Deutrons can be accelerated by cyclotron(true/false)……..

42. When deutron is bombarded with…… ,Neutrons are produced

43. Torque on the loop is zero when plane of the loop is…….. to the magnetic field.

44. Example for diamagnetic materials are……,…… and ……

45. Example for paramagnetic materials are……,…… and ……

46. Example for ferromagnetic materials are……,…… and ……

47. The resistance of an ideal ammeter is……..

48. The resistance of an ideal voltmeter is……

49. The range of an ammeter is increased by……..

50. The range of a voltmeter is increased by……

FORMULAE

1. Angle of dip=

2. Resultant magnetic field=

3.Magnetic dipole moment=

4. Magnetic field=

5. Magnetic flux=

6. Force between two magnetic poles=

7. Magnetic field due to a dipole along axial line=

8. Magnetic field along due to a dipole Equitorial line=

9. Torque acting on a bar magnet in a uniform magnetic field =

10. Potential energy of a bar magnet in a uniform magnetic field=

11. Intensity of Magnetisation=

13. Intensity of magnetization(With charge)

14. Magnetic induction=

15. Magnetic susceptibility=

16. Curie's law =

17. Curie Weiss Law=

18. Biot savart law=

19. Magnetic field due to long straight conductor carrying current=

20. Magnetic field along the axis of a current carrying circular coil=

21. Tangent law=

22. Tangent galvanometer(B_H)=

23. Magnetic dipole moment(With current)=

24. Gyro magnetic ratio =

25. Bohr magneton=

26. Magnetic field due to a long current carrying solenoid=

27. Magnetic field in the open space interior and exterior to the toroid=

28. Magnetic Field inside the toroid=

29. Magnetic Lorentz force=

30. Frequency and time period in a cyclotron=

31. Force on a current carrying conductor=

32. Force between two long parallel current carrying conductors=

33. Torque on a current loop placed in a magnetic field=

34. Reduction factor=

35. current sensitivity=

36. voltage sensitivity=

CHAPTER 4

1. SI unit of magnetic flux is……

2. Flux is also measured in……..

3. 1 weber= 1……..

4. To prevent eddy current loss, the winding in electric motor is made up of a ……

5. To prevent eddy current loss , the core of a transformer is made up of ……

6. ……..is known as generator rule.

7. Inductance is a …… quantity and it's unit is……or……

8.The dimensional formula for inductance is……..

9. Examples for inductors are……,…… and …….

10. Mutual inductance between two coil depends on …… ,……..,
…… and ……

11. Electromotive force is the characteristic of any energy source capable of driving
…… around a circuit.

12. Emf is measured in …… or……

13. Examples for sources providing EMF
are……,……..and……

14. For small Ac generators, emf is generated by rotating……..in
a…….

15. For large Ac generators and power stations , emf is generated by
rotating……..in a…….

16. The magnitude of the induced emf is given by ……..
and its direction by ……

17. The two components of a stator are……..
and……

18. Magnetic field windings are present in……

19. In the simplified construction of three phase AC generator, the armature core has ……..
slots. Each slot is …….. away from one another.

20. Armature coils are …… in shape and are …… apart from one
another.

21. In a 2 pole rotor ……pair of slip rings and ……..brushes are used.

22. The phase difference between emf of a penta wave Ac generator is (or) The angle
between armature windings of a penta wave AC generator are…….

23. Power is lost due to …… in the transmission lines

24. The resistance R can be reduced with thick wires of ……..or
……..

25. Mean or average value of symmetrical alternating current over one complete cycle is
……..

26. Hence the average value of AC is ……times the maximum value I_m of the
alternating current.

27. The base length of one cycle in an alternating cycle is ……

28. The RMS value of domestic AC supply is……..

29. The peak value of domestic AC supply is……

30. Rms value of AC is……times the maximum value of current.

31. Angular velocity of a phasor is equal to …… of AC

32. Current lags the voltage by 90^{o} in an……circuit.

33. The formula for inductive reactance is……

34. Ideal inductor offers …… resistance to steady DC current.

35. Capacitive circuit offers …… resistance to the steady current.

36. If inductive and capacitive resistance are equal, the circuit is …….

37. The power factor of a capacitive circuit is……..

38. The power factor of an inductive circuit is……

39. The tuning is commonly achieved by varying ……..of a parallel plate variable capacitor thereby changing the …… of the circuit

40. Resonance will not occur in …….. and …….. circuits.

41. In the Graph between frequency and current, For smaller resistance, …….. with …….. is obtained

42. This magnification of voltages at series resonance is termed as ……

43. Power factor for a series RLC circuit is……

44. Power factor for a RLC circuit at resonance is……

45. The phase difference between current an voltage in active component of current is……

46. The Phase difference between current and voltage in reactive component of current is……..

47. Q factor ranges from…….. to……

48. Oscillations in LC circuit are damped due to…… and ……..

49. The Mechanical equivalent of inductance is……

50. The mechanical equivalent of reciprocal of capacitance is……

Write the corresponding Formulae for the following

1. Magnetic flux

2. Faradays second law

3. Lenz's law

4. Motional Emf

5.Self inductance (2 formulae)

6. Mutual inductance (2 formulae)

7. Self inductance of a long solenoid

8. Energy stored in an inductor

9. Mutual inductance between two long solenoids

10. Power dissipated While induced current flows in a circuit

11.Alternating emf

12. Alternating current

13. Average current

14. Rms current

15.Impedance of an RLC circuit

16. Phase angle between V and I in an RLC circuit.

17.Resonant frequency

18. Q factor

19.Average power in an AC circuit

20. power factor

CHAPTER 6

1.For normal incidence of light, the angle of incidence is…….

2.The apparent shift in the direction of sun is about…….. degree and the corresponding time difference is…… minutes.

3. Critical angle for glass air interface is…… and water air interface is……

4. Refractive index of air…….. with density

5. If a prism reflects light by 90^0 or 180^0, the critical angle must be less than……

6. If there is no cladding, the refractive index of the core should be……

7. In case of a concave lens, the magnification is always…… And……than one.

8. For a thin lens, the magnification is…… for real image and …… for virtual image.

9. Power is large for lens with…….. radii of curvature.

10. Red has the longest wavelength of ……nm while violet has……..nm.

11. Speed of light is independent of…… in vacuum.

12. ……..is a non dispersive medium.

13.When white light enters the medium, …….. colour travels with the highest speed.

14. Refractive index is highest for…….. colour.

15. If earth has no atmosphere, sky would appear……

16. Angle of deviation due to reflection……and……

17. Mirror reflects……% of light

18. If reflecting surface is tilted by 45^0 then the reflected light is tilted by……

19. Focal length of a mirror is 20 cm . It's radius of curvature is……..

20. Mirror equation

21. Lateral magnification in spherical mirrors

22. Velocity of light(Fizeau method)

23. Angle of deviation due to refraction is …… And ……

24. For a plane surface centre of curvature is at…….. and radius of curvature is at……

25. Lens Maker's Formula

26. Power of a mirror is the ……of its focal length.

27. Wavelength of red color is……nm and violet is ……nm

CHAPTER 7

1. Energy of light is the ……energy of corpuscles.

2. …… is not explained by wave theory.

3. …… And …….. are not explained by electromagnetic theory.

4. Wave font is always …… to the ray.

5. Point source produces…… Wavefront and source at infinity produces……wavefront.

6. Shape of a wavefront observed at appoint depends on …… and……

7. Youngs double slit experiment uses……division to obtain coherent sources.

8. Amplitude division is done in instruments like…… And ……

9. …….. uses two images of the source as two coherent sources.

10. …… uses a source and its one virtual image as coherent sources.

11. Dazzling colors in an oil spread depend upon……, …… and ……

12. ……wavefront undergoes diffraction in Fraunhoffer diffraction.

13. A ……wavefront undergoes diffraction in Fresnel diffraction.

14.The unit of N in grating formula is……

15. The angular resolution of human eye is……

16. …… is a natural polarizing material.

17…… is an artificial polarizing material.

18. Thin films of ……is used in making polaroids.

19. The distance between eye ball and retina is……

20. Farsightedness arising due to aging is called……..

21. Hypermeteropia is corrected using…….

22. Myopia is corrected using…….

23. Astigmatic people can use…….. lens.

24. Resolving power of a microscope is……..

25. Resolving power of a telescope is ……

26. Bandwidth in YDSE

27. INTERFERENCE IN THIN FILMS

Condition for constructive interference (transmitted light)

Condition for Destructive interference (transmitted light)

Condition for constructive interference (reflected light)

Condition for Destructive interference (reflected light)

28. Fresnel's distance

29. Grating formula

30. Radius of an Airy's disc

31. Malus law

32. Brewster's law

33. Near point focusing (simple microscope)

34. Normal focusing (simple microscope)

35. Near point focusing (compound microscope)

36. Normal focusing (compound microscope)

37. resolving power of microscope

38. resolving power of telescope

39. Magnification in astronomical telescope

DUAL NATURE OF MATTER AND RADIATION

1. Energy is not localized but Particle is localized in…… and …….
2. Metals like……,……,……show photo electric effect with UV light.
3. Alkali metals show photoelectric effect with……light.
4. Photoelectric effect is instantaneous and takes place with in……s
5. Blackbody radiation shows ……nature of light.
6. The quality of X rays are measured in terms of……
7. The intensity of X rays is dependent on……
8. The penetrating power of X rays depends on…… and ……
9. In Coolidge tube the target elements are embedded on……anode
10. Target materials used in the preparation of X rays are…….
11. The minimum wavelength of emitted X rays depend on…….
12. Production and origin of cut off wavelength can be explained on the basis of……theory

13. Wavelength of X rays in Coolidge tube

14. De broglie Wavelength of electrons

15. Maximum velocity of electrons ejected

16. Thermionic emission takes place in

17. Field emission happens in

18. Photoelectric effect occurs in

19. Secondary emission occurs in

20. unit of intensity is

CHAPTER 9

1. The size of hydrogen atom is around……

2. Length and diameter of discharge tube are…… and …….

3. Potential of secondary in a discharge tube is around……..

4. Irregular streaks and crackling sound occur at a pressure of……..mm of hg

5. The dimensions of circular plates in Millikan's oil drop experiment is……

6. The potential difference between two plates in Millikan's oil drop experiment is……..

7. The direction of Viscous force ia always …….. to the motion of oil drop.

8. No stable…… exist in ……..configuration.

9.According to Rutherford, the size of nucleus is from……

10. 1 Rydberg=……..eV

11. The reduced mass of hydrogen is closer to the mass of……

12. Deutrium has……,……and ……..

13. Splitting of spectral lines in electric field is…….. effect and that in magnetic field is……

14. Tritium has…… Neutrons

15. Nuclear force acts between particles by exchange of particles called as……

16. In any decay process……must be conserved

17. Smoke detector uses…… of man made radioactive isotope called……..

18. The life time of excited state is approximately……..

19. The fraction of carbon 14 in air is……

20. ……..on bombardment with…… produces neutrons.

21……model is used in explaining nuclear fission

22. When slow neutron is absorbed by uranium 235 it goes to an excited state with life of……

23. Average number of neutrons released per fission is……

25. Fusion reaction is also called as…… Since it requires……kelvin to overcome nuclear repulsion.

26.In a star……energy is converted into…… And finally into……

27. The sun's interior temperature is……

28. In sun……of hydrogen is converted into helium every second.

29. In a red giant helium will fuse to become……..

30.The average energy in a proton proton cycle is……

31. The names of six quarks are…….

32…….. force plays a role in the fusion of hydrogen into helium in sun

33.The atoms in our body are stable because of……force.

34. Specific charge in J J Thomson experiment

35. Distance of closest approach

36. Angular momentum of an electron

37. Radius of nth orbit

38. Potential energy of an electron in nth orbit

39. Kinetic energy of an electron in nth orbit

40. Total energy of an electron in nth orbit

41. Energy of electron in first orbit……

42. Energy of electron in second orbit……

43. Energy of electron in third orbit……

44. Velocity of an electron in nth orbit

45. Reduced mass is closer to the mass of an……..

46. First and second excitation potential energy of hydrogen atom is…… and……

47. The kinetic energy, potential energy and total energy of an electron at infinity is……..

48. Radius of the nucleus is……

49. Density of a nucleus is……

50. 1amu =…… eV

51. Acceleration due to nuclear force is…… times greater than gravity.

52. Fuel used in nuclear reactor is…… or ……..

53. Example for moderators is…….

54. …….. and…… are used as control rods.

55. The thickness of concrete wall for shielding is around……..

56. Cooling system uses……,…… and……..

57. sodium has very high ……..

CHAPTER 10

1. Active components can generate……..in a circuit.

2. Sensor is a……component.

3. ……,……,……,…….. are passive components.

4. ……,……,……,…….. are active components.

5. Forbidden energy gap is…… for insulators.

6. Resistivity range of insulators is……

7. Resistivity range for conductors is……

8. Forbidden energy gap for semiconductors is……

9. Resistivity value for semiconductor is from……to…….

10.Forbidden energy gap for Si and Ge are……and ……..

11. Energy required to set free a donor electron is……. for Si, and ……for Ge.

12. The n type and p type semiconductors are…….. in charge.

13. Barrier potential is…… for Si and…… for Ge.

14. Reverse saturation current doubles for every …… Rise in temperature.

15. The forward resistance of an ideal diode is……

16. For Zener breakdown, the width of depletion layer is about……

17. Breakdown voltage can range from…… To……

18. Size of base in a transistor is……

19. The configuration which is called as emitter follower is……..

20. value of α ranges from……..to……..

21. knee voltage is…… for Si and…….. for Ge

22…… IC are used in audio and radio frequency amplification.

23. Frequency range of ground wave propagation is……

24. Frequency range of sky wave propagation is……

25. Frequency range of space wave propagation is……

26. Bandwidth of a signal having lower and upper frequency limits as V_1 and V_2 is……

27.Ionosphere is at a distance of ……and spreads upto……..

28.Uplink frequency for satellite communication is……

29. Downlink frequency for satellite communication is……..

30. Using …… it is possible to control various devices from a single device.