+2 Physics – 250 one mark Questions in the first volume

+ 2 Physics UNIT: 1 ELECTROSTATICS

1. The branch of science which deals with static electric charges is ……
2. If an glass rod is rubbed with silk, it becomes ……
3. Bodies which do not allow the charges to pass through them are called ……..
4. The force between two point charges q_1 and q_2 is given by the equation ……
5. If charged bodies of charges 7q , -3q , -4q and 5q are brought in contact, the total charge =
6. The value of the permittivity of free space is …….. $C^2 N^{-1} m^{-2}$
7. For air, ε_r = ……
8. The force exerted by an electric field E on a charge q is ……..
9. The unit of electric dipole moment is ……..
10. The electric field at any point on the axial line of an electric dipole is given by ……
11. The electric field at any point on the equatorial line of an electric dipole is ……
12. The torque experienced by an electric dipole in an electric field is given by ……
13. The direction of the electric dipole moment is from ……. to …….
14. The net force on an electric dipole in an electric field is F = ……
15. The relation between the electric field and the electric potential is given by ……
16. The total number of electric lines of forces passing through the given area is called electric ..
17. The unit of electric potential difference is ……...
18. The unit of electric field intensity is …….
19. The electric potential due to a point charge 9 µC at a distance 3 cm is ……volt.
20. The equation of electric potential at any point due to an electric dipole is ……
21. The work done in bringing each charge from infinite distance is called electric ……
22. The unit of electric flux is ……
23. The total electric flux of the electric field E over any closed surface is equal to $1/\varepsilon_o$ times the net charge enclosed by the surface. This is called ……
24. The electric field due to an infinite long straight charged wire is E = …….
25. The electric field due to an infinite long charged plane sheet is E = ……
26. Electric field at any point in between two parallel sheets of equal and opposite charges is E =
27. The electric field at any point on the surface of a uniformly charged spherical shell is …
28. Electrostatic shielding is based on the fact that the electric field inside a conductor is …
29. The phenomenon of obtaining charges without any contact with another charge is called
30. A charge of 9 µC given to the conductor increases the potential by 3 volt. The capacitance is
31. The unit of capacitance is ……..
32. A capacitor is a device to store …….
33. The number of electric lines of force originating from 1 coulomb charge is ……...
34. Non polar molecule is …….
35. Polar molecule is ……..
36. The magnitude of the induced dipole moment p is directly proportional to ……
37. The equation for the capacitance of a parallel plate capacitor with a dielectric is……..
38. When three capacitors C_1 , C_2 and C_3 are connected in parallel, then C_p = …….
39. Greater the radius of a conductor, …… is the charge density.
40. Van de Graaff generator produces a potential in the order of ……..volt.
41. Like charges …… and unlike charges ……. each other.
42. If there are 3 electrons in a body, then the total charge of the body q = …….
43. The permittivity of a medium is ……
44. The total number of electric lines of forces from a point charge 9 C in free space is N = …
45. The equation for the torque on an electric dipole is …….
46. Electric potential energy is of a system of 3 C and 6 C separated by 18 cm is ……J
47. The capacitances of a parallel plate capacitor with and without dielectric are 90 µF and 9 µF. Then ε_r is
48. In micro wave oven, ……. are used.
49. An electric dipole contains charges – 3 C and +3 C separated by 1 nm. The dipole moment is
50. The work done in moving a charge between any two points on an equipotential surface is …

B.ELANGOVAN. M.Sc., M.Ed., M.Phil., PACHAIYAPPA'S HR.SEC.SCHOOL, KANCHEEPURAM-631501.

+2 Physics UNIT : 2 CURRENT ELECTRICITY

1. A charge of 180 C passes through a lamp in 3 minutes. The current through it is …….
2. A material through which the electric charges can flow is called ……..
3. The current is proportional to the ……. velocity.
4. A toaster operating at 240 V has a resistance 60 ohm. The power is equal to …… watt.
5. When two 4 ohm resistors are in parallel, the effective resistance is equal to …….. ohm.
6. In the case of insulators, as the temperature increases, the resistivity ……..
7. If the resistance of the coil at 0°C is 1 ohm and α = 0.004/°C, the resistance at 100°C is ……
8. The current density has the unit …….
9. The drift velocity acquired per unit electric field is called …….
10. mho m^{-1} is the unit of ……
11. The resistivity of insulators is in the order of …….. Ωm.
12. In superconductors, the conductivity becomes …….
13. The tolerance of silver, gold, red and brown rings in a carbon resistor are ……
14. Four resistances 2Ω, 2 Ω, 4 Ω, 4 Ω are connected in series. The effective resistance is equal to …
15. Kirchoff's first law is a consequence of conservation of …….
16. Wheatstone's bridge principle is used in …….
17. Kirchoff's second law is a consequence of conservation of …….
18. The colours of a carbon resistor are red, green and orange. The value of resistance is …….. kΩ
19. The balancing lengths are l_1 =30 cm and l_2 = 70 cm when the known resistance of 14 Ω is connected in the right gap of a metre bridge. The value of unknown resistance is ……..
20. A lamp is operated at 240 V and the current is 0.25 A. The resistance value is …… ohm.
21. The balancing lengths are l_1 =510 cm and l_2 = 340 cm in a potentiometer experiment. The E_1 / E_2 is …
22. The instrument used for measuring electrical power is called …….
23. The unit of electro chemical equivalent is ……..
24. In voltaic cell, the electrolyte is ……..
25. In Leclanche cell, at the cathode due to oxidation, Zn atom is converted into ……. ions.
26. In lead acid accumulator, during discharge the emf falls to about …….. volt.
27. The cell which is rechargeable is ……..
28. The internal resistance of the secondary cells is ……
29. The mass of the substance liberated at an electrode is given by the equation ……..
30. In Daniel cell, the emf value is …… volt.
31. Three resistors each of 2 Ω are connected in series with a cell of 12 V. P. d across each resistor is …
32. A 10 Ω resistor is connected in series with a cell of emf 10 V. A voltmeter is connected in parallel to the cell and it reads 9.9 V. The internal resistance of the cell is …… ohm.
33. The work done in moving a charge of 10 μ C between two points having a p.difference 100 V is ……
34. If a current of 10 A flows through a resistor 10 k Ω, the power is …….. watt.
35. The colour code numbers of yellow and grey in a carbon resistor are …….
36. The temp at which a normal conductor is converted into a super conductor is called …….
37. The resistivity of copper is 2 X 10^{-8} Ωm. The conductivity of it is ……. mho m^{-1}
38. A copper wire of 10^{-6} m^2 area of cross-section, carries a current density 1.6 X 10^6 Am-2 and n = 8 X 10^{28} electrons / m^3. The drift velocity is equal to …… ms^{-1}.
39. Two wires of same material and same length have resistances 16 Ω and 25 Ω. The ratio of the radii……
40. 1 kWh is equal to …….. J.
41. The external energy necessary to drive the free electrons in a definite direction is called as ……..
42. The rate of flow charges is called as ……
43. The direction of flow of positive charges in a conductor is called as the ……..
44. An electron of charge **e** in an electric field **E** experiences a force ……...
45. The unit of mobility is …….
46. The quantity of charge passing per unit time through unit area is called as ……..
47. The resistivity of semiconductors is in the order of …… Ωm.
48. …… can be used as memory or storage elements in computers.
49. The temperature coefficient of resistance of alloys is ……..
50. Germanium and silicon are called as ……..

B.ELANGOVAN. M.Sc., M.Ed., M.Phil., PACHAIYAPPA'S HR.SEC.SCHOOL, KANCHEEPURAM-631501.

+2 Physics Unit : 3 Effects of electric current

1. The electric iron works on the principle of ..... effect of current.
2. The melting point of tungsten is ..... ^{o}C.
3. Fuse wire has high resistance and ..... melting point.
4. The thermo emf is maximum at a temperature called ..... temperature.
5. The unit of Peltier coefficient is .....
6. Thomson effect is zero for .....
7. The unit of Thomson coefficient is .....
8. Thermopile is a device used to detect .....
9. The equation for the magnetic induction at the centre of the current carrying circular ring is B =.....
10. Tangent galvanometer works on the principle of .....
11. The reduction factor of T.G. is given by the equation .....
12. The magnitude of Lorentz force is F = ...
13. The torque on a current carrying coil is maximum when the coil is… to the magnetic field.
14. The deflection per unit voltage is called .....sensitivity of a galvanometer.
15. An ideal voltmeter is which has ..... resistance.
16. The product of the current and the loop area is called .....
17. The value of the gyromagnetic ratio is ..... C kg $^{-1}$.
18. The magnetic field in a moving coil galvanometer is the ..... magnetic field.
19. The equation for force on a current carrying conductor in a magnetic field is F = ...
20. Lawrence devised .....
21. For a given thermocouple, ... temperature is a constant
22. Peltier effect is the converse of ..... effect.
23. In transformers, dynamos ..... effect is undesirable.
24. At the temperature of inversion, the thermo emf is .....
25. Thermal energy may be used to produce an emf. This is called ..... effect.
26. Joule's law of heating is given by the equation H = ...
27. The alloy of nickel and chromium is called .....
28. The relation between the thermo emf and the temperature is V = ...
29. The amount of heat absorbed or evolved at one junction in Peltier effect is H = ...
30. Sn, Au, Ag, Zn, Cd, Sb show ..... effect.
31. Bi, Ni, Pt, Co, Fe, Hg show ..... effect.
32. Seebeck effect is a ..... process.
33. The thermo emf produced in Bi- Ag thermo couple is ..... Bi-Sb thermo couple.
34. Peltier coefficient depends on pair of metals in contact and the ..... of the junction.
35. The unit of the magnetic induction is .....
36. The magnetic induction due to infinitely long straight conductor carrying current is B = …
37. Around a current carrying conductor magnetic field is associated. This was observed by…
38. Tangent galvanometer is most sensitive for a deflection of .....
39. Tangent law is B = ...
40. ..... law can be written as $\int B \cdot dl = \mu_o I_o$.
41. When a charged particle moves in a circular path in a magnetic field, the time period is T = ...
42. The torque on a rectangular coil of wire in a magnetic field is .....
43. The deflection per unit current is called ..... sensitivity of a galvanometer.
44. The current sensitivity is given by (θ / I) = ...
45. To convert a galvanometer in to an ammeter, a ..... resistance is connected in parallel with the galvanometer.
46. To convert a galvanometer in to a voltmeter, a ..... resistance is connected in series with the galvanometer.
47. Bohr magneton value is ..... Am^2.
48. A current of 0.2 A flows through a circular loop of area 10 cm^2. The magnetic dipole moment is ..... Am^2
49. In TG, a current of 1A produces a deflection of 30^0. The current that produces a deflection of 60^0 is ..... A
50. The resistance of the tungsten wire of a 100W,220V bulb is ..... ohm.

B.ELANGOVAN. M.Sc., M.Ed., M.Phil., PACHAIYAPPA'S HR.SEC.SCHOOL, KANCHEEPURAM-631501.

+2 Physics Unit :4 Electro magnetic induction and Alternating currents

1. Lenz law is in accordance with the law of conservation of ……
2. The self inductance of a straight conductor is ……
3. The unit henry can also be written as ……
4. Transformer works on …… currents only.
5. The part of the AC generator that passes the current from the coil to the external circuit is ……
6. The number of magnetic lines of forces crossing unit area in a magnetic field is magnetic ……
7. Electromagnetic induction was discovered by …….
8. Fleming's right hand rule is also called as …… rule.
9. The unit of self inductance is ……...
10. The energy stored in an inductor is given by E = ……..
11. The equation for the mutual induction of two long solenoids is M = ……..
12. The induced emf by changing the area enclosed by a coil in a magnetic field is e = …….
13. When the plane of a coil is perpendicular to a magnetic field, the induced emf is …….
14. AC generator is a device used for converting the mechanical energy into ……..
15. If a number armature coils are used in the alternator, it is called as ……. alternator.
16. Electro magnetic brakes use …….. current
17. Transformer works on the …… principle.
18. The ratio of the output power to the input power of a transformer is called ……
19. Eddy current losses are minimized by using a core made of …… an alloy of steel.
20. The frequency of AC used for domestic power in India is ……..
21. The average value of the AC over one complete cycle is ……..
22. The relation between I_{rms} and I_o is ……
23. In an AC circuit containing R only, the phase difference between current and voltage is ……
24. The inductive reactance X_L is given by X_L = ……
25. A capacitor offers infinite resistance to …… current.
26. In RLC circuit, the instantaneous current is given by I = ……..
27. The equation for Q factor is given by Q = ……..
28. The average power consumed over a complete cycle is P_{av} =
29. Choke coil is used to control the current in an …… circuit.
30. Choke coils are used in …….. tubes which work on alternating currents.
31. The reactance of an inductor is …… proportional to the frequency.
32. Shell type cores are used to minimize …… losses.
33. The number of magnetic lines of forces crossing a closed area is called magnetic ……..
34. The selectivity or sharpness of a resonant circuit is measured by the …… factor.
35. The ratio of the voltage across a coil or capacitor to the applied voltage is called as ……
36. For normal frequencies, the Q factor lies between ……...
37. For radio frequencies, air chokes are used. These chokes are called as …… chokes.
38. Whenever there is a change in the magnetic flux linked with a closed circuit, an emf is induced in it. This phenomenon is called ……..
39. In Fleming's right hand rule, the middle finger points the direction of the ……
40. The property of the coil which enables to produce an opposing induced emf in it when the current in the coil changes is called ……
41. If two coils are wound on a soft iron core, the mutual induction is ……
42. The induced emf is given by the equation e = ……
43. In fans, …….. motors are used.
44. In step up transformers, the transformer ratio k is …… than one.
45. A power of 11kW is transmitted at 5.5kV through a transmission line of resistance 1 ohm. The power loss = ……
46. In an AC circuit with C only, the phase difference between the current and the voltage is ……
47. In an LCR circuit, at resonance, the impedance is ……. and the current is maximum.
48. The rms value of the AC is …….. times the peak value of the alternating current.
49. The direction of the eddy current can be noted by ……
50. In a three phase AC generator, the emf's of the coils differ by ……...

B.ELANGOVAN. M.Sc., M.Ed., M.Phil., PACHAIYAPPA'S HR.SEC.SCHOOL, KANCHEEPURAM-631501.

+2 Physics Unit – 5 Electromagnetic waves and wave optics

1. Electromagnetic waves are discovered by ----------
2. An accelerated charge is a source of ----------
3. Electromagnetic waves are ---------- in nature.
4. The relation between the velocity of light C, μ_0 and ε_0 is given by the relation C = ----------
5. Hertz produced electromagnetic waves of frequency ----------
6. Electromagnetic waves cover a wide range of ----------
7. Atoms and molecules in an electric discharge tube give ---------- rays.
8. The wavelength range of microwaves is ----------
9. The frequency range of X rays is ----------
10. The frequency range of FM band is from ----------
11. In Physiotherapy, ---------- lamps are used.
12. The wavelengths of the sodium emission lines are ---------- .
13. The ---------- spectrum is used to identify the gas.
14. Incandescent solids, carbon arc lamp etc. give ---------- spectrum.
15. Using ---------- spectra, the molecular structure of the substance can be studied.
16. The example of line absorption spectrum is ---------- spectrum.
17. The sun's outer layer is called ----------
18. The type of delayed fluorescence is called ----------
19. According to corpuscular theory, light energy is the kinetic energy of the ----------
20. Huygens assumed that light waves are ---------- in nature.
21. The energy of each photon is given by the equation ----------
22. The scattering of sunlight by the molecules of the earth's atmosphere is called ----------
23. The scattering of light by the colloidal particles is called ---------- effect.
24. In industry, ---------- spectroscopy is applied to study the properties of the materials.
25. The locus of the particles having the same state of vibration is called as ----------
26. A linear source of light will give rise to ---------- wavefront.
27. ---------- principle helps us to locate the position and the shape of the wavefront.
28. In reflection of light, the angle of incidence = the angle of ----------
29. For total internal ---------- to take place, light must travel from denser medium to rarer medium.
30. The equation of bandwidth of interference fringes is β = ----------
31. An important application of interference in thin films is the formation of ---------- rings.
32. The radius of the n^{th} dark ring equation is ----------.
33. The amount of bending in diffraction depends on the ----------
34. In Fresnel diffraction, the incident wavefront is either ----------.
35. Using spectrometer, ---------- diffraction can be observed.
36. The combined width of a slit and a ruling is called ----------
37. In a plane diffraction grating, λ = ----------
38. The phenomenon of ---------- proves that light waves are transverse.
39. The plane perpendicular to the plane of vibration is called plane of ----------
40. A device that produces a plane ---------- light is called polariser.
41. The angle of incidence at which the reflected beam is completely plane polarised is angle of ----
42. The equation for Brewster's law is μ = ----------
43. The polarising angle for glass is ----------
44. The pile of plates uses the polarisation by ---------- phenomenon.
45. The double refraction phenomenon was discovered by ----------
46. Crystals like mica, topaz etc. having two optic axes are called ----------
47. The refractive index for Canada balsam cement is ---------- for both the rays.
48. H polaroids use a thin film of ----------
49. Polaroids are used as ---------- glasses
50. In an EM wave, the angle between the electric and the magnetic field vectors are at ----------.

With thanks - from

B.ELANGOVAN. M.Sc., M.Ed., M.Phil., PACHAIYAPPA'S HR.SEC.SCHOOL, KANCHEEPURAM-631501.

e-mail id : b_elangovan_phss@yahoo.co.in

+2 Physics – 250 one mark Questions and Answers in the first volume

+ 2 Physics UNIT: 1 ELECTROSTATICS Answer s

1. The branch of science which deals with static electric charges is ……	electrostatics
2. If an glass rod is rubbed with silk, it becomes ……	positively charged
3. Bodies which do not allow the charges to pass through them are called ……..	insulators
4. The force between two point charges q_1 and q_2 is given by the equation ……	$F = q_1 q_2 / 4\pi\varepsilon_o r^2$
5. If charged bodies of charges 7q , -3q , -4q and 5q are brought in contact, the total charge =	5 q
6. The value of the permittivity of free space is …….. $C^2 N^{-1} m^{-2}$	8.854×10^{-12}
7. For air, ε_r = ……	1
8. The force exerted by an electric field E on a charge q is ……..	$F = Eq_o$
9. The unit of electric dipole moment is ……..	C m
10. The electric field at any point on the axial line of an electric dipole is given by ……	$E = 2p / 4\pi\varepsilon_o r^3$
11. The electric field at any point on the equatorial line of an electric dipole is ……	$E = p / 4\pi\varepsilon_o r^3$
12. The torque experienced by an electric dipole in an electric field is given by ……	$\tau = pE \sin\theta$
13. The direction of the electric dipole moment is from ……. to …….	-q , +q
14. The net force on an electric dipole in an electric field is F = ……	zero
15. The relation between the electric field and the electric potential is given by ……	$E = - dV / dr$
16. The total number of electric lines of forces passing through the given area is called electric .. ….	flux
17. The unit of electric potential difference is ……...	volt
18. The unit of electric field intensity is …….	$V m^{-1}$
19. The electric potential due to a point charge 9 μC at a distance 3 cm is ……volt.	27×10^5
20. The equation of electric potential at any point due to an electric dipole is ……	$V = p \cos\theta / 4\pi\varepsilon_o r^2$
21. The work done in bringing each charge from infinite distance is called electric……	potential energy
22. The unit of electric flux is ……	$N m^2 C^{-1}$
23. The total electric flux of the electric field E over any closed surface is equal to $1 / \varepsilon_o$ times the net charge enclosed by the surface. This is called ……	Gauss law
24. The electric field due to an infinite long straight charged wire is E = …….	$\lambda / 2\pi\varepsilon_o r$
25. The electric field due to an infinite long charged plane sheet is E = ……	$\sigma / 2\varepsilon_o$
26. Electric field at any point in between two parallel sheets of equal and opposite charges is E =	σ / ε_o
27. The electric field at any point on the surface of a uniformly charged spherical shell is …	$q / 4\pi\varepsilon_o R^2$
28. Electrostatic shielding is based on the fact that the electric field inside a conductor is …	zero
29. The phenomenon of obtaining charges without any contact with another charge is called	electrostatic induction
30. A charge of 9 μC given to the conductor increases the potential by 3 volt. The capacitance is	3 μF
31. The unit of capacitance is ……...	farad
32. A capacitor is a device to store …….	charges
33. The number of electric lines of force originating from 1 coulomb charge is ……..	1.129×10^{11}
34. Non polar molecule is …….	O_2, N_2, H_2
35. Polar molecule is ……..	N_2O, H_2O, HCl, NH_3
36. The magnitude of the induced dipole moment p is directly proportional to ……	E
37. The equation for the capacitance of a parallel plate capacitor with a dielectric is……..	$\varepsilon_o \varepsilon_r A / \varepsilon_r (d - t) + t$
38. When three capacitors C_1 , C_2 and C_3 are connected in parallel, then C_p = …….	$(C_1 + C_2 + C_3)$
39. Greater the radius of a conductor, …… is the charge density.	smaller
40. Van de Graaff generator produces a potential in the order of ……..volt.	10^7
41. Like charges …… and unlike charges …….. each other.	repel, attract
42. If there are 3 electrons in a body, then the total charge of the body q = …….	3e
43. The permittivity of a medium is ……	$\varepsilon_0 . \varepsilon_r$
44. The total number of electric lines of forces from a point charge 9 C in free space is nearly N = …	10^{12}
45. The equation for the torque on an electric dipole is …….	$\vec{\tau} = \vec{p} \times \vec{E}$
46. Electric potential energy is of a system of 3 C and 6 C separated by 18 cm is ……J	9×10^{11}
47. The capacitances of a parallel plate capacitor with and without dielectric are 90 μF and 9 μF. Then ε_r is …..	10
48. In micro wave oven, ……. are used.	microwaves
49. An electric dipole contains charges – 3 C and +3 C separated by 1 nm. The dipole moment is	3×10^{-9} Cm
50. The work done in moving a charge between any two points on an equipotential surface is …	zero.

+2 Physics UNIT : 2 CURRENT ELECTRICITY

		Answers
1.	A charge of 180 C passes through a lamp in 3 minutes. The current through it is …….	1 A
2.	A material through which the electric charges can flow is called ……..	conductor
3.	The current is proportional to the ……. velocity.	drift
4.	A toaster operating at 240 V has a resistance 60 ohm. The power is equal to …… watt.	960
5.	When two 4 ohm resistors are in parallel, the effective resistance is equal to …….. ohm.	2
6.	In the case of insulators, as the temperature increases, the resistivity ……..	decreases
7.	If the resistance of the coil at 0^oC is 1 ohm and $\alpha = 0.004/^oC$, the resistance at 100^oC is ……	1.4 ohm
8.	The current density has the unit ……..	$A\ m^{-2}$
9.	The drift velocity acquired per unit electric field is called …….	mobility
10.	mho m^{-1} is the unit of ……	conductivity
11.	The resistivity of insulators is in the order of …….. Ωm.	10^8 to 10^{14}
12.	In superconductors, the conductivity becomes …….	infinity
13.	The tolerance of silver, gold, red and brown rings in a carbon resistor are ……	10%. 5%, 2%. 1%
14.	Four resistances 2Ω, 2 Ω, 4 Ω, 4 Ω are connected in series. The effective resistance is equal to …	12 ohm
15.	Kirchoff's first law is a consequence of conservation of …….	charges
16.	Wheatstone's bridge principle is used in …….	Kirchoff's laws
17.	Kirchoff's second law is a consequence of conservation of …….	energy
18.	The colours of a carbon resistor are red, green and orange. The value of resistance is …….. kΩ	25
19.	The balancing lengths are l_1 =30 cm and l_2 = 70 cm when the known resistance of 14 Ω is connected in the right gap of a metre bridge. The value of unknown resistance is ……..	6 ohm
20.	A lamp is operated at 240 V and the current is 0.25 A. The resistance value is …… ohm.	960
21.	The balancing lengths are l_1 =510 cm and l_2 = 340 cm in a potentiometer experiment. The E_1 / E_2 is …	3 / 2
22.	The instrument used for measuring electrical power is called …….	wattmeter
23.	The unit of electro chemical equivalent is ……..	kg / C
24.	In voltaic cell, the electrolyte is ……..	dil H_2SO_4
25.	In Leclanche cell, at the cathode due to oxidation, Zn atom is converted into ……. ions.	Zn^{++}
26.	In lead acid accumulator, during discharge the emf falls to about …….. volt.	2
27.	The cell which is rechargeable is ……..	secondary cell
28.	The internal resistance of the secondary cells is ……..	very low
29.	The mass of the substance liberated at an electrode is given by the equation ……..	m = z I t
30.	In Daniel cell, the emf value is …… volt.	1.08
31.	Three resistors each of 2 Ω are connected in series with a cell of 12 V. P. d across each resistor is …	4volt
32.	A 10 Ω resistor is connected in series with a cell of emf 10 V. A voltmeter is connected in parallel to the cell and it reads 9.9 V. The internal resistance of the cell is …… ohm.	0.1
33.	The work done in moving a charge of 10 μ C between two points having a p.difference 100 V is ……	10^{-3} joule
34.	If a current of 10 A flows through a resistor 10 k Ω, the power is …….. watt.	10^6
35.	The colour code numbers of yellow and grey in a carbon resistor are …….	4 and 8
36.	The temp at which a normal conductor is converted into a super conductor is called …	superconducting transition temperature
37.	The resistivity of copper is 2 X 10^{-8} Ωm. The conductivity of it is ……. mho m^{-1}	5 X 10^7
38.	A copper wire of 10^{-6} m^2 area of cross-section, carries a current density 1.6 X 10^6 Am-2 and n = 8 X 10^{28} electrons / m^3. The drift velocity is equal to …… ms^{-1}.	1.25 X 10^{-4}
39.	Two wires of same material and same length have resistances 16 Ω and 25 Ω. The ratio of the radii……	5 / 4
40.	1 kWh is equal to …….. J.	36 X 10^5
41.	The external energy necessary to drive the free electrons in a definite direction is called as ……..	electromotive force
42.	The rate of flow charges is called as ……	current
43.	The direction of flow of positive charges in a conductor is called as the ……..	conventional current
44.	An electron of charge **e** in an electric field **E** experiences a force ……...	F = E e
45.	The unit of mobility is …….	$m^2\ V^{-1}\ s^{-1}$
46.	The quantity of charge passing per unit time through unit area is called as ……..	current density
47.	The resistivity of semiconductors is in the order of …… Ωm.	10^{-2} to 10^4
48.	…… can be used as memory or storage elements in computers.	superconductors
49.	The temperature coefficient of resistance of alloys is ……...	very small
50.	Germanium and silicon are called as …….	semiconductors

+2 Physics — Unit : 3 Effects of electric current — Answers

1. The electric iron works on the principle of …… effect of current.	Joule's heating
2. The melting point of tungsten is …… ^{o}C.	3380
3. Fuse wire has high resistance and …… melting point.	low
4. The thermo emf is maximum at a temperature called …… temperature.	neutral
5. The unit of Peltier coefficient is ……	volt
6. Thomson effect is zero for ……	lead
7. The unit of Thomson coefficient is ……	volt / ^{0}C
8. Thermopile is a device used to detect ……	thermalradiations
9. The equation for the magnetic induction at the centre of the current carrying circular ring is B =……	$\mu_0 nI / 2a$
10. Tangent galvanometer works on the principle of ……	tangent law
11. The reduction factor of T.G. is given by the equation ……	$2aB_h / \mu_0 n$
12. The magnitude of Lorentz force is F = …… .	$Bqv \sin\theta$
13. The torque on a current carrying coil is maximum when the coil is… to the magnetic field.	parallel
14. The deflection per unit voltage is called ……sensitivity of a galvanometer.	voltage
15. An ideal voltmeter is which has …… resistance.	infinite
16. The product of the current and the loop area is called ……..	magnetic dipole moment
17. The value of the gyromagnetic ratio is …… C kg $^{-1}$.	8.8 X 10 ^{10}
18. The magnetic field in a moving coil galvanometer is the …… magnetic field.	radial
19. The equation for force on a current carrying conductor in a magnetic field is F = ……..	BIl
20. Lawrence devised ……	cyclotron
21. For a given thermocouple, …… temperature is a constant	neutral
22. Peltier effect is the converse of …… effect.	Seebeck
23. In transformers, dynamos …… effect is undesirable.	Joule's heating
24. At the temperature of inversion, the thermo emf is ……	zero
25. Thermal energy may be used to produce an emf. This is called …… effect.	thermoelectric
26. Joule's law of heating is given by the equation H = ……	VIt
27. The alloy of nickel and chromium is called ……	nichrome
28. The relation between the thermo emf and the temperature is V = ……	$\alpha\,\theta + \frac{1}{2}\beta\theta^2$
29. The amount of heat absorbed or evolved at one junction in Peltier effect is H = ……	πIt
30. Sn, Au, Ag, Zn, Cd, Sb show …… effect.	Positive Thomson
31. Bi, Ni, Pt, Co, Fe, Hg show …… effect.	Negative Thomson
32. Seebeck effect is a …… process.	reversible
33. The thermo emf produced in Bi- Ag thermo couple is …… Bi-Sb thermo couple.	smaller than
34. Peltier coefficient depends on pair of metals in contact and the …… of the junction.	temperature
35. The unit of the magnetic induction is ……	tesla
36. The magnetic induction due to infinitely long straight conductor carrying current is B = …	$\mu_0 I / 2\pi a$
37. Around a current carrying conductor magnetic field is associated. This was observed by…	Oersted
38. Tangent galvanometer is most sensitive for a deflection of ……	45^{0}
39. Tangent law is B = …… .	$B_H \tan\theta$
40. …… law can be written as $\int B \cdot dl = \mu_o I_o$.	Ampere's circuital
41. When a charged particle moves in a circular path in a magnetic field, the time period is T = ……	$2\pi m / Bq$
42. The torque on a rectangular coil of wire in a magnetic field is ……	$nBIA \sin\theta$
43. The deflection per unit current is called …… sensitivity of a galvanometer.	current
44. The current sensitivity is given by (θ / I) = ……	nBA / C
45. To convert a galvanometer in to an ammeter, a …… resistance is connected in parallel with the galvanometer.	low
46. To convert a galvanometer in to a voltmeter, a …… resistance is connected in series with the galvanometer.	high
47. Bohr magneton value is …… Am^2.	9.27 X 10 $^{-24}$
48. A current of 0.2 A flows through a circular loop of area 10 cm^2. The magnetic dipole moment is …… Am^2	2 X 10 $^{-4}$
49. In TG, a current of 1A produces a deflection of 30^{0}. The current that produces a deflection of 60^{0} is …… A	3
50. The resistance of the tungsten wire of a 100W,220V bulb is …… ohm.	484

B.ELANGOVAN. M.Sc., M.Ed., M.Phil., PACHAIYAPPA'S HR.SEC.SCHOOL, KANCHEEPURAM-631501.

+2 Physics

Unit : 4 Electro magnetic induction and Alternating currents — Answers

1.	Lenz law is in accordance with the law of conservation of ……	energy
2.	The self inductance of a straight conductor is ……	zero
3.	The unit henry can also be written as ……	$V\ s\ A^{-1}$
4.	Transformer works on …… currents only.	alternating
5.	The part of the AC generator that passes the current from the coil to the external circuit is ……	brushes.
6.	The number of magnetic lines of forces crossing unit area in a magnetic field is magnetic ……	induction
7.	Electromagnetic induction was discovered by …….	Michael Faraday
8.	Fleming's right hand rule is also called as …… rule.	generator
9.	The unit of self inductance is ……...	H
10.	The energy stored in an inductor is given by E = …….	$\frac{1}{2} L I_o^2$
11.	The equation for the mutual induction of two long solenoids is M = ……..	$\mu_o N_1 N_2 A / l$
12.	The induced emf by changing the area enclosed by a coil in a magnetic field is e = …….	– Blv
13.	When the plane of a coil is perpendicular to a magnetic field, the induced emf is …….	zero
14.	AC generator is a device used for converting the mechanical energy into ……..	electrical energy
15.	If a number armature coils are used in the alternator, it is called as ……. alternator.	poly phase
16.	Electro magnetic brakes use …….. current	eddy
17.	Transformer works on the …… principle.	electromagnetic induction
18.	The ratio of the output power to the input power of a transformer is called ……	efficiency
19.	Eddy current losses are minimized by using a core made of …… an alloy of steel.	stelloy
20.	The frequency of AC used for domestic power in India is ……..	50 Hz
21.	The average value of the AC over one complete cycle is ……..	0
22.	The relation between I_{rms} and I_o is ……	$I_{rms} = I_o / \sqrt{2}$
23.	In an AC circuit containing R only, the phase difference between current and voltage is ……	0
24.	The inductive reactance X_L is given by X_L = ……	$L\omega$
25.	A capacitor offers infinite resistance to …… current.	direct
26.	In RLC circuit, the instantaneous current is given by I = ……..	$Io\ Sin(\omega t \pm \varphi)$
27.	The equation for Q factor is given by Q = ……..	$1/R(\sqrt{L/C})$
28.	The average power consumed over a complete cycle is P_{av} =	$E_{rms} I_{rms} \cos\varphi$
29.	Choke coil is used to control the current in an …… circuit.	AC
30.	Choke coils are used in …….. tubes which work on alternating currents.	fluorescent
31.	The reactance of an inductor is …… proportional to the frequency.	directly
32.	Shell type cores are used to minimize …… losses.	flux
33.	The number of magnetic lines of forces crossing a closed area is called magnetic ……..	flux
34.	The selectivity or sharpness of a resonant circuit is measured by the …… factor.	quality
35.	The ratio of the voltage across a coil or capacitor to the applied voltage is called as ……	quality factor
36.	For normal frequencies, the Q factor lies between ……...	10 and 100
37.	For radio frequencies, air chokes are used. These chokes are called as …… chokes.	R F or H F
38.	Whenever there is a change in the magnetic flux linked with a closed circuit, an emf is induced in it. This phenomenon is called ……...	electromagnetic induction
39.	In Fleming's right hand rule, the middle finger points the direction of the ……	induced current
40.	The property of the coil which enables to produce an opposing induced emf in it when the current in the coil changes is called ……	self induction
41.	If two coils are wound on a soft iron core, the mutual induction is ……	very large
42.	The induced emf is given by the equation e = ……	Eo sin ωt
43.	In fans, …….. motors are used.	induction
44.	In step up transformers, the transformer ratio k is …… than one.	greater
45.	A power of 11kW is transmitted at 5.5kV through a transmission line of R=1 ohm. The power loss = ….	4 W
46.	In an AC circuit with C only, the phase difference between the current and the voltage is ……	π / 2
47.	In an LCR circuit, at resonance, the impedance is ……. and the current is maximum.	minimum
48.	The rms value of the AC is …….. times the peak value of the alternating current.	0.707
49.	The direction of the eddy current can be noted by ……	Lenz's law
50.	In a three phase AC generator, the emf's of the coils differ by ……...	120^0

+2 Physics Unit – 5 Electromagnetic waves and wave optics Answers

1.	Electromagnetic waves are discovered by ----------	J.C.Maxwell
2.	An accelerated charge is a source of ----------	electromagnetic radiation
3.	Electromagnetic waves are ---------- in nature.	transverse
4.	The relation between the velocity of light C, μ_0 and ε_0 is given by the relation C = ----------	$1 / \sqrt{\mu_0 \varepsilon_0}$
5.	Hertz produced electromagnetic waves of frequency ----------	5×10^7 Hz
6.	Electromagnetic waves cover a wide range of ----------	wavelengths or frequencies
7.	Atoms and molecules in an electric discharge tube give ---------- rays.	UV
8.	The wavelength range of microwaves is ----------	10^{-3} m - 0.3 m
9.	The frequency range of X rays is ----------	3×10^{18} to 10^{16} Hz
10.	The frequency range of FM band is from ----------	88 MHz to 108 MHz
11.	In Physiotherapy, ---------- lamps are used.	infra-red
12.	The wavelengths of the sodium emission lines are ---------- .	5896 A° and 5890 A°
13.	The ---------- spectrum is used to identify the gas.	line
14.	Incandescent solids, carbon arc lamp etc. give ---------- spectrum.	continuous
15.	Using ---------- spectra, the molecular structure of the substance can be studied.	band
16.	The example of line absorption spectrum is ---------- spectrum.	solar
17.	The sun's outer layer is called ----------	chromosphere
18.	The type of delayed fluorescence is called ----------	phosphorescence
19.	According to corpuscular theory, light energy is the kinetic energy of the ----------	corpuscles
20.	Huygens assumed that light waves are ---------- in nature.	longitudinal
21.	The energy of each photon is given by the equation ----------	$E = h\gamma$
22.	The scattering of sunlight by the molecules of the earth's atmosphere is called ----------	Rayleigh scattering
23.	The scattering of light by the colloidal particles is called ---------- effect.	Tyndal
24.	In industry, ---------- spectroscopy is applied to study the properties of the materials.	Raman
25.	The locus of the particles having the same state of vibration is called as ----------	wavefront
26.	A linear source of light will give rise to ---------- wavefront.	cylindrical
27.	---------- principle helps us to locate the position and the shape of the wavefront.	Huygen
28.	In reflection of light, the angle of incidence = the angle of ----------	reflection
29.	For total internal ---------- to take place, light must travel from denser medium to rarer medium.	reflection
30.	The equation of bandwidth of interference fringes is β = ----------	$\lambda D / d$
31.	An important application of interference in thin films is the formation of ---------- rings.	Newton's
32.	The radius of the n^{th} dark ring equation is ----------.	$r_n = (n R \lambda)^{1/2}$
33.	The amount of bending in diffraction depends on the ----------	wavelength of the incident wave
34.	In Fresnel diffraction, the incident wavefront is either ----------.	spherical or cylindrical
35.	Using spectrometer, ---------- diffraction can be observed.	Fraunhofer
36.	The combined width of a slit and a ruling is called ----------	grating element
37.	In a plane diffraction grating, λ = ----------	$\sin\theta / Nm$
38.	The phenomenon of ---------- proves that light waves are transverse.	polarisation
39.	The plane perpendicular to the plane of vibration is called plane of ----------	polarisation
40.	A device that produces a plane ---------- light is called polariser.	polarized
41.	The angle of incidence at which the reflected beam is completely plane polarised is angle of ----	polarisation
42.	The equation for Brewster's law is μ = ----------	$\tan i_p$
43.	The polarising angle for glass is ----------	57. 5°
44.	The pile of plates uses the polarisation by ---------- phenomenon.	reflection
45.	The double refraction phenomenon was discovered by ----------	Bartholinus
46.	Crystals like mica, topaz etc. having two optic axes are called ----------	biaxial crystals
47.	The refractive index for Canada balsam cement is ---------- for both the rays.	1.550
48.	H polaroids use a thin film of ----------	polyvinyl alcohol
49.	Polaroids are used as ---------- glasses	sun
50.	In an EM wave, the angle between the electric and the magnetic field vectors are at ----------.	90°

With thanks - from

B.ELANGOVAN. M.Sc., M.Ed., M.Phil., PACHAIYAPPA'S HR.SEC.SCHOOL, KANCHEEPURAM-631501.

e-mail id : b_elangovan_phss@yahoo.co.in

Phone : 9444438464