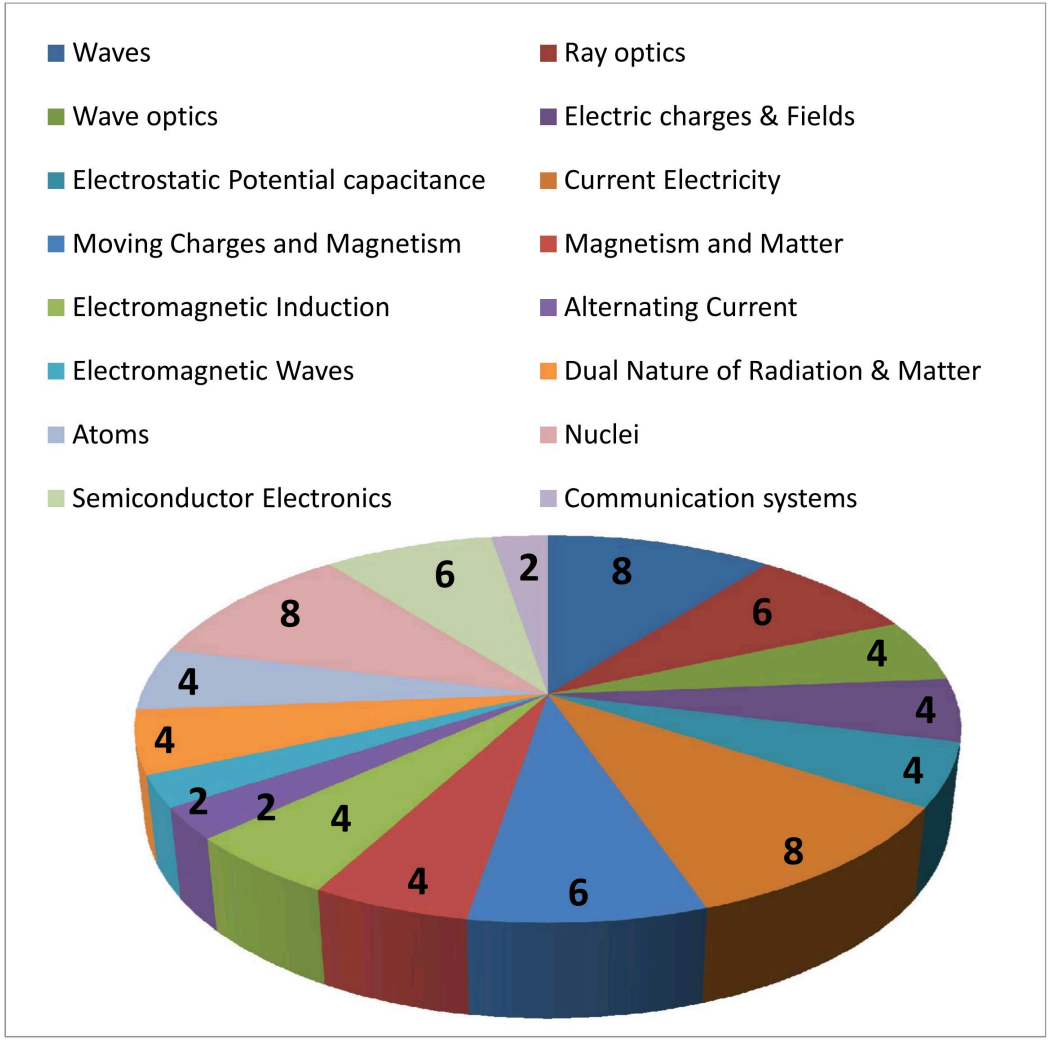
PHYSICS TOPIC WISE WEIGHTAGE					
How to Score Minimum 40-50 Marks For Slow Learners					
S.NO	CHAPTER NAME	NO OF QUESTIONS			
		LAQ's	SAQ's	VSAQ's	TOTAL
1	Waves	1	-	-	**8**
2	Ray optics	-	1	1	**6**
3	Wave optics	-	1	-	**4**
4	Electric charges & Fields	-	1	-	**4**
5	Electrostatic Potential capacitance	-	1	-	**4**
6	Current Electricity	1	-	-	**8**
7	Moving Charges and Magnetism	-	1	1	**6**
8	Magnetism and Matter	-	-	2	**4**
9	Electromagnetic Induction	-	1	-	**4**
10	Alternating Current	-	-	1	**2**
11	Electromagnetic Waves	-	-	1	**2**
12	Dual Nature of Radiation & Matter	-	-	2	**4**
13	Atoms	-	1	-	**4**
14	Nuclei	1	-	-	**8**
15	Semiconductor Electronics	-	1	1	**6**
16	Communication systems	-	-	1	**2**
	TOTAL	3	8	10	**76**



SR.INTER PHYSICS IMP QUESTIONS

LAQ's (8 Marks Questions)

WAVES

1**. Explain the formation of stationary waves in stretched strings and hence deduce the laws of transverse waves in stretched strings.

2**. Explain the formation of stationary waves in an air column enclosed in open pipe. Derive the equations for the frequencies of the harmonics produced.

3**. How are stationary waves formed in closed pipe? Explain the various modes of vibrations and obtain relations for their frequencies.

4***. What is Doppler effect? Obtain an expression for the apparent frequency of sound heard when the source is in motion with respect to an observer at rest.

5***. What is Doppler shift? Obtain an expression for the apparent frequency of sound heard when the observer is motion with respect to a source at rest.

CURRENT ELECTRICITY

6***. State Kirchhoffs law for an electrical network. Using these laws deduce the condition for balance in a Wheatstone bridge.

7***. State the working principle of potentiometer explain with the help of circuit diagram how the emf of two primary cells are compared by using the potentiometer

8**. State the working principle of potentiometer explain with the help of circuit diagram how the potenti ometer is used to determine the internal resistance of the given primary cell.

MOVING CHARGES AND MAGNETISM

9***. Obtain an expression for the torque on a current carrying loop placed in a uniform magnetic feild. Describe the construction and working of a moving coil galvanometer.

NUCLEI

10**. What is radioactivity? State the law of radioactive decay. Show that radioactive decay is exponential innature.

11***. Explain the principle and working of a nuclear reactor with the help of a labeled diagram.

SAQ's (4 Marks Questions)

RAY OPTICS AND OPTICAL INSTRUMENTS

1***. Define focal length of a concave mirror. Prove that the radius of curvature of a concave mirror is double its focal length.

2***. Define critical angle. Explain total internal reflection using a neat diagram.

3***. Explain the formation of a mirage.

4*. Explain the formation of a rainbow.

5. With a neat labelled diagram explain the formation of image in a simple microscope.

6***. What is the position of the object for a simple microscope? What is the maximum magnification of a simple microscope for a realistic focal length?

WAVE OPTICS

7***. Explain Doppler effect in light. Distinguish between red shift and blue shift.?

8**. Derive the expression for the intensity at a point where interference of light occurs. Arrive at the conditions for maximum and zero intensity.?

9**. How do you determine the resolving power of your eye?

10*. Discuss the intensity of transmitted light when a polaroid sheet is rotated between two crossed polaroids

11. Principal of sonservation of energy hold for interference and for difftration? Explain.

ELECTRIC CHARGES AND FIELDS

12**. State and explain Coulomb's inverse square law in electricity.?

13**. Define intensity of electric field at a point. Derive an expression for the intensity due to a point charge.?

14***.Derive the equation for the couple acting on a electric dipole in a uniform electric field.?

15**. Derive an expression for the intensity of the electric field at a point on the axial line of an electric dipole ?

16**. Derive an expression for the intensity of the electric field at a point on the equatorial plane of an electric dipole

17**. State Gauss's law in electrostatics and explain its importance.

ELECTROSTATIC POTENTIAL AND CAPACITANCE

18**. Derive an expression for the electric potential due to a point charge.

19**. Derive an expression for the potential energy of an electric dipole placed in a uniform electric field.

20***.Derive an expression for the capacitance of a parallel plate capacitor

21. Explain series combination of capacitors. Derive the formula for equivalent capacitance in each combination.

22. Explain parallel combination of capacitors. Derive the formula for equivalent capacitance in each combination.

23. Derive an expression for the energy stored in a capacitor.

MOVING CHARGES AND MAGNETISM

24***.State and explain Biot-Savart law.

25**. State and explain Ampere's law.

ELECTROMAGNETIC INDUCTION

26**. Describe the ways in which Eddy currents are used to advantage.

ATOMS

27***.What are the limitations of Bohr's theory of hydrogen atom?

28*. Describe Rutherford atom model. What are the draw backs of this model?

29*. Explain the different types of spectral series.

NUCLEI

30**. Write a short note on the discovery of neutron.

31***.Define half life period and decay constant for a radioactive substance. Deduce the relation between them.

32***.Distinguish between nuclear fission and nuclear fusion.

SEMICONDUCTOR ELECTRONICS MATERIALS, DEVICES AND SIMPLE CIRCUITS

33***.Describe how a semi conductor diode is used as a half wave rectifier.

34***.What is rectification? Explain the working of a full wave rectifier.

35***.Distinguish between half-wave and full-wave rectifiers.

36**. Distinguish between zener breakdown and avalanche breakdown.

37*. Explain the working of LED and what are its advantages over conventional incandescent low power lamps.

38***.Define NAND and NOR gates. Give their truth tables.

39. What is a Zener diode?Explain how it is used as a voltage regulator.

VSAQ's (2 Marks Questions)

RAY OPTICS AND OPTICAL INSTRUMENTS

1***. Define 'power' of a convex lens. What is its unit ?

2**. What is 'dispersion'? Which colour gets relatively more dispersed ?

3***.What is myopia ? How can it be corrected ?

4***.What is hypermetropia? How can it be corrected ?

ELECTRIC CHARGES AND FIELDS

5*. What is meant by the statement 'charge is quantized?

6**. Repulsion is the sure test of charging than attraction. Why?

7**. How many electrons constitute 1 C of charge

8**. What happens to the weight of a body when it is charged positively?

9**. What happens to the force between two charges if the distance between them is
a) halved b) doubled?

10***. The electric lines of force do not intersect. why?

ELECTROSTATIC POTENTIAL AND CAPACITANCE

11**. What are meant by equipotential surfaces?

12**. Three capacitors of capacitances I μF , 2 μF , and 3 μF are connected in parallel.
a) What is the ratio of charge?
b) What is the ratio of potential differences?

13**. Three capacitors of capacitances 1 μF ,2 μF ,and 3 μF are connected in series

a) What is the ratio of charge?

b) What is the ratio of potential differences?

14**. What happens to the capacitance of a parallel plate capacitor if the area of its plates is doubled?

CURRENT ELECTRICITY

15***.State Ohm's law and write its mathematical form.

16**. Define resistivity or specific resistance

17***.Define temperature coefficient of resistance.

18***.Why is manganin used for making standard resistors?

19**. The sequence of bands marked on a carbon resistor are: Red, Red, Red, Silver. What is its resistance and tolerance?

20*. Write the color code of a carbon resistor of resistance 23 kilo ohms.

21*. If the voltage V applied across a conductor is increased to 2V, how will the drift velocity of the electrons change?

22**. Two wires of equal length, of copper and manganin, have the same resistance. Which wire is thicker?

23*. Why are household appliances connected in parallel?

MOVING CHARGES AND MAGNETISM

24*. What is the importance of Oersted's experiment?

25**. State Ampere's law and Biot -Savart law

26**. A circular coil of radius'r' having N turns carries a current "i". What is its magnetic moment?

27*. What is the force on a conductor of length L carrying a current "i" placed in a magnetic field of in duction B? When does it becomes maximum?

28*. What is the force on a charged particle of charge "q" moving with a velocity "v" in a uniform magnetic field of induction B? When does it becomes maximum?

29**. Distinguish between ammeter and voltmeter.

30**. What is the principle of a moving coil galvanometer?

31*. What is the smallest value of current that can be measured with a moving coil galvanometer?

32**. How do you convert a moving coil galvanometer into an ammeter?

33**. How do you convert a moving coil galvanometer into a voltmeter?

MAGNETISM AND MATTER

34*. A magnetic dipole placed in a magnetic field experiences a ne t force.

35*. What can you say about the nature of the magnetic field?

36**. What happens to compass needles at the Earth's poles?

37**. What do you understand by the 'magnetization' of poles?

38*. What is the magnetic moment associated with a solenoid?

39**. What are the units of magnetic moment, magnetic induction and magnetic field?

40***. Magnetic lines form continuous closed loops. Why?

41**. Define magnetic declination.

42**. Define magnetic inclination or angle of dip.

43***.Classify the following materials with regard to magnetism. Manganese. Cobalt, Nickel. Bismuth. Oxygen.Copper

ELECTROMAGNETIC INDUCTION

44***.State Faraday's law of electromagnetic induction.

45***.State Lenz's Law

46*. What are Eddy currents?

47**. Define inductance

48***.What do you understand by 'self inductance'?

ALTERNATING CURRENT

49***.A transformer converts 200 V ac into 2000 V ac. Calculate the number of turns in the secondary if the primary has 10 turns.

50***.What type of transformer is used in a 6V bed lamp?

51***.What is the phenomenon involved in the working of a transformer?

52***.What is transformer ratio?

53*. Write the expression for the reactance of i) an inductor and ii) a capacitor.

54*. What is the phase difference between AC emf and current in the following: Pure resistor, pure induc tor and pure capacitor.

55**. Define power factor. On which factors does power factor depend?

56**. What is meant by wattless component of current?

57*. When does a LCR series circuit have minimum impedance?

58*. What is the phase difference between voltage and current when the power factor in LCR series circuit is unity?

ELECTROMAGNETIC WAVES

59**. If the wavelength of electromagnetic radiation is doubled, what happens to the energy of photon?

60**. What is the principle of production of electromagnetic waves?

61*. What are the applications of microwaves?

62**. Microwaves are used in Radars, why?

63**. Give two uses of infrared rays.

DUAL NATURE OF RADIATION AND MATTER

64*. What are "cathode rays"?

65*. What important fact did Millikan's experiment establish?

66***.What is "work function" ?

67***.What is "photoelectric effect"?

68*. Give examples of "photosensitive substances".Why are they called so?

69***.Write down Einstein's photoelectric equation.

70*. Write down deBroglie's relation and explain the terms there in.

71**. State Heisenberg's Uncertainty Principle.

ATOMS

72*. What is the difference between α -particle and helium atom?

73*. What do you understand by the phrase ground state atom ?

SEMICONDUCTOR ELECTRONICS MATERIALS, DEVICES AND SIMPLE CIRCUITS

74***.What is an n-type semiconductor?What are the majority and minority charge carriers in it?

75*. What are intrinsic and extrinsic semiconductors?

76***.What is a p-type semiconductor? What are the majority and minority charge carriers in it?

77**. How is a battery connected to a junction diode in i) forward and ii) reverse bias?

78*. What is the maximum percentage of rectification in half wave and full wave rectifiers?

79*. What happens to the width of the depletion layer in a p-n junction diode when it is i) forward-biased and ii) reverse biased?

80***.Draw the circuit symbols for p-n-p and n-p-n transistors.

81**. Define amplifier and amplification factor.

82***.In which bias can a Zener diode be used as voltage regulator?

83***.Which gates are called universal gates?

84**. Write the truth table of NAND gate. How does it differ from AND gate?

COMMUNICATION SYSTEM

85***.What are the basic blocks of a communication system?

86***.What is "World Wide Web" (WWW)?

87***.Mention the frequency range of speech signals.

88***.What is sky wave propogation?

89***.Mention the various parts of the ionosphere?

90***.Define modulation. Why is it necessary?

91***.Mention the basic methods of modulation.

92***.Which type of communication is employed in Mobile phones?