

12TH STD PHYSICS PUBLIC EXAM IMPORTANT QUESTIONS (2022-23)

12th std Physics very very Important
Questions....

இதை மட்டும் படித்தால்
போதும்...



அனைவருக்கும் பகிரவும்....

QUESTION PATTERN

PART – I (1 MARK) = 15 MARKS

PART – II (2 MARK) = 12 MARKS

PART – III (3 MARK) = 18 MARKS

PART – IV (5 MARK) = 25 MARKS

TOTAL = 70 MARKS

12th physics unit (1-11) book back important questions (2022-23)

unit	2 marks	3 marks	5 marks
1	ii. 2,7,8,10,15,19,20,21	ii. 3 iii. 5,6,10,17,18	iii. 4(i&ii),7,11,22
2	ii. 2,3,6,7,8,10,14,17,20	ii. 21 iii. 4	iii. 1,3,6,8
3	ii. 2,4,6,8,9,11,13,14,15,18	iii. 4,11[G-V] & [G-A],14,15	iii. 2,5,6,8,13
4	ii. 2,3,4,6,14,17,16,18,20,23	iii. 4,8(10),10(12),16(18),21(23),23(25)	iii. 11(13),13(15),15(17),19(21)
5	ii. 1,2,3,6,8	ii. 5 iii. 1	iii. 4,6,8,9
6	ii. 5,7,10,22,26,27,28,29,30	ii. 2,4,9,12 iii. 5	iii. 1,2,3,7,9,10
7	ii. 5,7,8,11,13,16,20,25	ii. 17,19,26,30,31,32,34,37	iii. 1,4,7,12,13,14
8	ii. 2,3,6,7,9,10,14,15,17	iii. 5,10,11,14	iii. 1,3,8,12,13
9	ii. 1,6,9,14,16,17,20,26	ii. 2,18 iii. 4,17	iii. 1,2,10,15,3
10	ii. 1,3,4,9,11,14,16,18,22,24	ii. 5,8 iii. 3,12,17,18	iii. 2,4,9,14,5
11	ii. 3,6	ii. 1,2 iii. 3	-----

Note:

1. (..) old book question number.
2. [...] important problems.
3. [...] for bright students.

PART – 1 (1 MARKS QUESTIONS): [15]

- ❖ MUST READ ALL LESSONS BOOK BACK QUESTIONS UNIT (1-11).
- ❖ MUST READ FIRST FIVE UNITS INTERIOR ONE MARKS (1-5).

PART – 2 (2 MARKS QUESTIONS): [12]

- ❖ MUST READ ALL IMPORTANT & BOOK BACK QUESTIONS FOR ALL UNITS
- ❖ THEN SECOND PREFERENCES TO GIVE FOR INTERIOR QUESTIONS.

PART – 3 (3 MARKS QUESTIONS): [18]

- ❖ MUST READ ALL IMPORTANT & BOOK BACK QUESTIONS FOR ALL UNITS.
- ❖ THEN SECOND PREFERENCES TO GIVE FOR INTERIOR QUESTIONS.

PART – 5 (5 MARKS QUESTIONS): [25]

- ❖ MUST READ ALL IMPORTANT & BOOK BACK QUESTIONS FOR UNITS LIKE (1,2,5,8,9,10,11)
- ❖ THEN SECOND PREFERENCES TO GIVE FOR REMANING LESSONS.

NOTE: YOU STUDY OUR QUESTION BANK VOL – 1 & 2 IS ENOUGH FOR YOUR PUBLIC EXAM TO SCORE 65⁺ / 70

12TH STD PHYSICS IMPORTANT PROBLEMS

UNITS	EXAMPLES
1	1.1,1.2,1.6,1.11,1.12,1.13,1.16,1.17,1.20,1.21,1.22,1.24
2	2.1,2.2,2.3,2.4,2.5,2.6,2.8,2.9,2.10,2.11,2.13,2.14,2.16,2.17, 2.18,2.19,2.22,2.23,2.24,2.25,2.26,2.27
3	3.5,3.8,3.9,3.10,3.14,3.15,3.19,3.23,3.25
4	4.1,4.2,4.11,4.12,4.14,4.15,4.16,4.17,4.18,4.19,4.20,4.21,4.22, 4.23,4.24,4.25,4.26
5	5.1,5.2,5.3,5.4
6	6.5,6.6,6.7,6.9,6.11,6.15,6.16,6.21,6.22
7	7.1,7.2,7.3,7.4,7.5,7.10,7.11,7.12,7.13,7.14,7.15,7.17,7.18,7.21 ,7.22,7.23
8	8.2,8.3,8.6,8.7,8.9
9	9.1,9.2,9.7,9.10,9.12,9.15
10	10.2,10.3,10.4,10.5,10.6,10.7,10.8,10.9,10.10

**OUR QUESTION BANK FOR VOL - 1 & 2 ..
IN NEXT PAGE...**

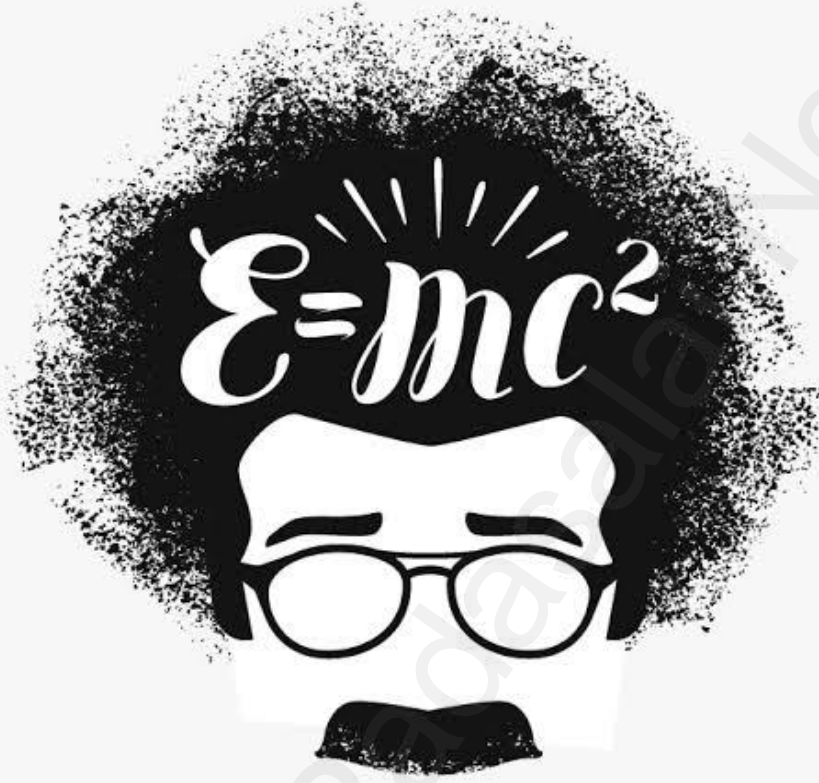
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12TH PHYSICS VOL – I QUESTION BANK BASED ON (2022-2023)



VOLUME – I 2MARKS, 3MARKS, & 5MARKS QUESTION BANK

NAME :

CLASS :

SUBJECT :

Unit – 1 (Electrostatics)

2Marks :

1. Define Coulomb's Law. (4)
2. Define One Coulomb. (5)
3. Define Superposition Principle. (9)
4. Define Electric Field & SI unit & Formula. (12)
5. Define Electric Dipole with Examples. (20)
6. Define Electric Dipole Moment & SI unit. (20)
7. Define Microwave Oven. (25)
8. Define Equi-potential Surface. (31)
9. Electric Flux & SI unit & Quantity. (36)
10. State Gauss Law & Formula. (40)
11. Define Electrostatic Shielding. (48)
12. Why Safer to sit Inside the Bus/Car during Lightning. (49)
13. Define Electrostatic Induction. (49)
14. Define Relative Permittivity. (5)
15. Define Electric Potential at a Point. (26)
16. Define Electric Potential Difference. (26)
17. Write Non- Polar Molecules with Examples. (51)
18. Write Polar Molecules with Examples. (52)
19. Define Polarisation. (52)
20. Define Dielectric Strength. (53)
21. Define Capacitance of Capacitor & SI unit. (54)
22. Define Energy Density. (56)
23. State Principle of Van de Graff Generator. (66)
24. State Principle of Lightning Arrestor. (65)

3 Marks:

1. Explain Electric Field due to a Point Charge. (11)
2. Explain Electric Field Lines. (17)
3. Explain Torque Experienced by an Electric Dipole in the Uniform Electric Field. (24)
4. Explain Electric Potential at a Point. (27)
5. Explain Electrostatic Potential Energy for Two Point Charges. (33)
6. Explain Electrostatic Potential Energy for Three Point Charges. (33)
7. Explain Electrostatic Potential Energy of a Dipole in a Uniform Electric Field. (35)
8. Explain Applications of Capacitors. (57)
9. Explain Capacitor Connected in Series. (60)
10. Explain Capacitor Connected in Parallel. (61)

5 Marks:

1. Difference Between Gravitational Force and Coulomb Force. (5)
2. Explain Electric Field due to an Electric Dipole at a Point on the Axial Line. (22)
3. Explain Electric Field due to an Electric Dipole at a Point on the Equatorial Line. (22)
4. Explain Electrostatic Potential at a Point due to an Electric Dipole (With Cases). (30)
5. Explain Electric Field due to Uniform Charged Spherical Shell. (44)
6. Explain Electric Field due to Two Parallel Charged Infinite Sheets. (44)
7. Explain Electric Field due to Charged Infinite Plane Sheet. (43)
8. Explain Electric Field due to an Infinitely Long Charged Wire. (41)
9. Explain Capacitance of a Parallel Plate Capacitor. (54)
10. Explain the Capacitor is Disconnected from the Battery. (57)

11. Explain the Battery Remain Connected to the Capacitor. (58)

12. Explain Van de Graaff Generator. (66)

Unit – 2 (Current Electricity)

2Marks :

1. Define Current. (82)

2. Define Drift velocity. (83)

3. Define Mobility. (84)

4. State Ohm's Law. (87)

5. Define Current Density. (85)

6. Define Resistance. (87)

7. Write Resistivity (or) Electrical resistivity (or) Specific resistivity with SI unit. (88)

8. Write Electrical Conductivity with SI unit. (88)

9. Define Conductance. (87)

10. Define Temperature Coefficient with SI unit. (95)

11. How can you Change the Resistivity of Materials. (96)

12. Define Critical temperature. (96)

13. Define Super Conductor. (96)

14. Define Electric Power. (97)

15. Define Electromotive Force (EMF) with SI unit. (100)

16. Define Potential Difference with SI unit. (100)

17. State Kirchhoff's First rule (or) Current rule (or) Junction rule. (104)

18. State Kirchhoff's Second rule (or) Voltage rule (or) Loop rule. (105)

19. State Joule's Law. (112)
20. Write Joule's Heating Effect. (111)
21. Define Thermoelectric Effect. (114)
22. Define Seebeck Effect. (114)
23. Define Thermopiles. (114)
24. Define Thermocouple. (114)
25. Write Magnitude of the EMF developed in Thermocouple. (114)
26. Define Peltier Effect. (115)
27. Define Thomson Effect. (115)

3 Marks:

1. Write Relation Between Drift velocity & Mobility. (83,84)
2. Explain Macroscopic Ohm's Law. (86)
3. Explain Kirchhoff's Second rule . (105)
4. Explain Joule's Law. (112)
5. Explain Seebeck effect with Diagram. (114)
6. Application of Seebeck Effect. (114)
7. Explain Peltier Effect. (115)
8. Explain Thomson Effect. (115)

5 Marks:

1. Explain Microscopic form of Ohm's Law. (85)
2. Explain Resistors Connected in Series. (90)
3. Explain Resistors Connected in Parallel. (91)
4. Explain Determination of Internal Resistance by using Volt meter.(101)
5. Explain Cells Connected in Series. (102)
6. Explain Cells Connected in Parallel. (103)

7. Explain Wheatstone's Bridge. (106)
8. Explain Meter Bridge. (108)
9. Explain Principle of Potentiometer. (109)
- 10 Explain Comparison of emf of Two cells with a Potentiometer. (110)
11. Explain Measurement of Internal Resistance of a cell by Potentiometer. (111)

Unit-3 Magnetism & Magnetic Effects

of Electric Current

2marks:

1. Define Magnetic Inclination. (128)
2. Define Magnetic Declination. (128)
3. Define Horizontal component of Earth Magnetic field. (128)
4. Define Magnetic Dipole moment. (130)
5. Define Magnetic field & SI unit. (130)
6. Define Magnetic flux & SI unit. (133)
7. Define Magnetic flux density & SI unit. (133)
8. Define Uniform Magnetic field. (133)
9. Define Non-Uniform Magnetic field. (134)
10. State Coulomb Inverse Square law of Magnetism. (135)
11. Define Magnetizing field. (141)
12. Define Magnetic Permeability. (141)
13. Define Relative Permeability. (141)
14. Define Intensity of Magnetization. (141)

15. Define Magnetic Induction. (142)
16. Define Magnetic Susceptibility. (142)
17. State Curie's law. (145)
18. Define Ferromagnetic Domain. (145)
19. State Curie- Wiess law. (147)
20. Define Remanence. (149)
21. Define Coercivity. (149)
22. Define Hysteresis. (149)
23. State Right Hand Thumb rule. (153)
24. State Maxwell Right Hand Screw rule. (153)
25. State Tangent law. (159)
26. Define Magnetic Dipole Moment of Any Current Loop. (160)
27. State End rule. (160)[table3.3]
28. State Right Hand Thumb rule. (160)
29. State Ampere Circuital law. (162)
30. Define Toroid. (166)
31. Define Tesla. (168)
32. State Principle of Cyclotron. (174)
33. Define Limitations of Cyclotron. (175)
34. State Fleming Left Hand rule. (177)
35. Define One Ampere. (179)
36. Define Sensitivity of Galvanometer. (182)
37. Define Figure of Merit of a Galvanometer. (182)
38. Define Current Sensitivity. (182)
39. How can you Increase the Current Sensitivity of a Galvanometer. (182)
40. How can you Decrease the Current Sensitivity of a Galvanometer. (182)

41. How can you Increase the Voltage Sensitivity of a Galvanometer. (182)
42. How can you Decrease the Voltage Sensitivity of a Galvanometer. (182)
43. Define voltage sensitivity. (182)
44. Why Phosphor - Bronze is used for Moving Coil Galvanometer. (182)
45. How can you convert Galvanometer into Ammeter. (184)
46. How can you convert Galvanometer into Voltmeter. (185)

3marks:

1. Explain Properties of Magnetic Lines. (133)
2. Explain Torque acting on a Bar magnet in Uniform Magnetic field. (138)
3. Explain Potential energy of a Bar Magnet in a Uniform Magnetic field. (139)
4. Explain Properties of Diamagnetic materials. (144)
5. Explain Properties of Paramagnetic materials. (145)
6. Explain Properties of Ferromagnetic materials. (146)
7. Explain Hysteresis Loss. (149)
8. Explain Biot Savart law. (154)
9. Explain Current Loop as a Magnetic field. (160)
10. Explain Lorentz Force. (168)
11. Explain Velocity Selector. (173)

5 marks:

1. Explain Properties of Magnet. (130)
2. Explain Magnetic field at a point along the Axial line of the Magnetic dipole. (135)
3. Explain Magnetic field at a point along the Equatorial line of the Magnetic dipole. (137)
4. Explain Magnetic field due to Long Straight Conductor carrying current. (156)

5. Explain Magnetic field produced along the Axis of the Current – Carrying Circular coil. (157)
6. Explain Tangent Law & Tangent Galvanometer. (158)
7. Explain Magnetic Dipole Moment of revolving Electron. (161)
8. Explain Magnetic field due to the Current Carrying Wire of Infinite Length using Ampere's law. (162)
9. Explain Magnetic field due to a long Current Carrying Solenoid. (164)
10. Explain Motion of a charged particle in a Uniform Magnetic field. (170)
11. Explain Cyclotron. (174)
12. Explain Force on a Current Carrying Conductor placed in a Magnetic field. (176)
13. Explain Force Between Two Long Parallel current carrying conductors. (178)
14. Explain Conversion of Galvanometer to an Ammeter. (183)
15. Explain Conversion of Galvanometer to a Voltmeter. (184)
16. Explain Moving Coil Galvanometer. (181)
17. Explain Torque on a Current Loop placed in a Magnetic field. (179)

Unit-4 (Electromagnetic Induction and Alternating Current)

2Marks:

1. Define Magnetic Flux. (196)
2. Define Electromagnetic Induction. (198)
3. State Faraday's law (i) First law (ii) Second law. (200)
4. State Lenz's law. (202)

5. Define Eddy current (or) Foucault current. (208)

6. State Fleming Right Hand rule. (204)

7. Define Self Inductance. (212)

8. Define Coefficient of Self Induction. (212)

9. Define One Henry for Self Inductance. (212)

10. Define Mutual Induction. (215)

11. Define Coefficient of Mutual Induction. (216)

12. Define Unit of Mutual Induction. (216)

13. Define ElectroMotive Force (EMF). (218)

14. Define Methods of producing Induced EMF. (218)

15. Define Poly- Phase Generators. (227)

16. Define Step- Up Transformer. (228)

17. Define Step- Down Transformer. (228)

18. Define RMS value. (235)

19. Define Resonant Frequency. (245)

20. Define Quality Factor (or) Q- Factor. (247)

21. Define Wattless Current. (249)

3Marks:

1. Explain Motional EMF from Lorentz force. (206)

2. Explain Conservation of Energy by Lenz's law. (204)

3. Explain Self Inductance of a long Solenoid. (213)

4. Explain Energy Stored in an Inductor. (214)

5. Explain Mutual Induction. (219)

6. Explain AC generator. (223)

7. Explain Advantages of Stationary Armature – Rotating field Alternator. (224)

8. Explain Three- Phase AC Generator. (227)
9. Explain Advantages of Three- Phase Alternator. (227)
10. Explain Energy Losses in a Transformer. (229)
11. Explain RMS value of AC. (235)
12. Explain AC Circuit containing Pure Resistor. (238)
13. Explain Quality Factor (or) Q- Factor. (247)

5Marks:

1. Explain Application of Eddy Current. (209)
2. Explain Mutual Inductance Between Two Long Co- Axial Solenoids.(216)
3. Explain Production of Induced EMF by Changing Relative Orientation the Coil with the Magnetic field. (221)
4. Explain Single- Phase AC Generator. (224)
5. Explain Construction & Working of Transformer. (228)
6. Explain AC Circuit containing only a Inductor. (239)
7. Explain AC Circuit containing only a Capacitor. (241)
8. Explain AC Circuit containing a Resistor,an Inductor, and a Capacitor in Series (Series RLC circuit). (244)
9. Explain Power in AC Circuits. (248)
10. Explain Advantages & Disadvantages of ac Over DC. (250)
11. Explain Conservation of Energy in LC Oscillations. (253)

Unit – 5 (Electromagnetic waves)

2Marks :

1. Write Displacement Current. (269)
2. Define Electromagnetic Waves. (272)
3. Define Fraunhofer Lines. (279)

4. Define Spectrum. (278)

5. Dispersion of Light. (278)

3Marks :

1. Explain the Following Waves:. (275)

(i) Radio Waves (ii) Microwaves (iii) Infrared Radiation

2. explain the Following Waves:. (276)

(i) Visible Light (ii) Ultraviolet Radiation

(iii) X – rays (iv) Gamma rays

3. Explain Absorption Spectra. (279)

4. Explain Emission Spectra. (278)

5Marks :

1. Explain Maxwell Equation in Integral form. (270)

2. Write properties of Electromagnetic Waves. (272)

3. Explain Absorption and Emission Spectra. (278), (279)

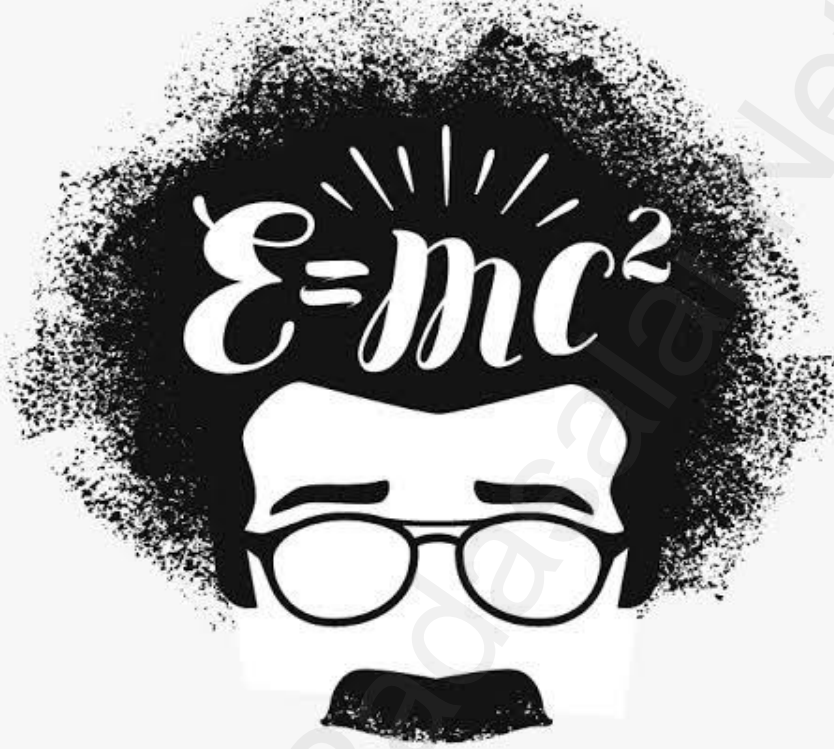
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12TH PHYSICS VOL - II QUESTION BANK BASED ON (2022-2023)



VOLUME - II 2MARKS, 3MARKS, & 5MARKS QUESTION BANK

NAME :

CLASS :

SUBJECT :

Unit – 6 Ray Optics

2Marks :

1. Write law of reflection. (2)
2. Write characteristics of the image formed by plane mirror. (4)
3. Write refractive index. (12)
4. Define optical path. (13)
5. Write law of refraction. (14)
6. Write snell's law. (14)
7. Define principle of reversibility. (16)
8. Write critical angle. (19)
9. Define total internal reflection. (19)
10. Define power of a lens. (33)
11. Write angle of minimum deviation. (40)
12. Write spectrum. (41)
13. Define relative refractive index. (16)
14. Write the factors for angle of deviation. (39)
15. Define angular dispersion. (43)
16. Define dispersive power. (43)
17. Write scattering of light. (44)
18. Write Rayleigh scattering law. (44)
19. Write Rayleigh scattering. (44)
20. Why sky appears blue during day time. (44)
21. Write reason for the reddish appearance of sky during sunrise and sunset. (44)

22. Write the reason for the whitish appearance of cloud. (44)
23. Why rain clouds appear dark. (44)
24. Define focal length. (6)
25. Define focal plane. (6)
26. Define lateral (or) transverse magnification. (9)
27. Write conditions for total internal reflection. (19)
28. Define mirage. (21)
29. Define cladding (or) sleeving. (23)
30. Define optical fibre acceptance angle. (24)
31. Why do stars twinkle. (18)
32. Define angle of deviation. (38)
33. Define concave mirror. (5)
34. Define convex mirror. (5)
35. Define centre of curvature. (5)
36. Define radius of curvature. (5)
37. Define pole. (5)
38. Define principle axis. (5)
39. Define focus (or) focal point. (6)
40. Define dispersion. (41)
41. Define prism. (38)
42. Write factors for angle of deviation for a monochromatic light. (39)
43. What is snell's window. (22)

3Marks :

- 1.Explain apparent depth. (17)
2. Explain refractive index of a material of the prism. (40)

3. Explain angle of deviation due to reflection. (2)
4. Explain relation between focal length and radius of curvature. (6)
5. Explain angle of deviation produces by prism. (38)
6. Explain length of lenses in contact. (34)
7. Explain equation for optical path. (13)
8. Explain equation for critical angle. (19)

5Marks :

1. Explain lateral magnification in thin lens. (31)
2. Explain len's maker formula. (30)
3. Explain fizau's method to determine speed of light. (11)
4. Explain mirror equation. (8)
5. Explain lateral magnification in spherical mirrors. (9)
6. Explain dispersive power. (42)
7. Explain equations for snell's window (or) radius of illumination. (22)

Unit – 7 Wave Optics

2Marks :

1. Write hugen's principle. (55)
2. Define interference. (58)
3. Write coherent sources. (61)
4. Write incoherent sources. (61)
5. Define constructive interference. (62)
6. Define destructive interference. (63)
7. Write conditions for obtaining clear and broad interference bands.

8. Define diffraction. (69)
9. Define fresnel's distance. (73)
10. Define resolving power.
11. Define polarisar. (81)
12. Define analyser. (81)
13. Define malus law. (81)
14. Define polarizing angle (i_p). (84)
15. Write brewster's law. (84)
16. Define band width. (65)
17. Define wave front. (54)
18. Define plane polarized light. (81)
19. Write characteristics of polarised light and unpolarised light. (80)
20. Write the factors of colour depends upon thin films.
21. Define resolution. (89)
22. Define polarization. (79)
23. Write the types of polarization techniques. (80)

3Marks :

1. Explain astigmatism. (97)
2. Explain reflecting technique. (92)
3. Explain astronomical telescope. (91)
4. Explain magnification of astronomical telescope. (92)
5. Explain malus law. (81)
6. Explain Brewster law. (84)
7. Explain pile of plates. (85)
8. Explain law of reflection using huygen's principles. (56)

9. Explain law of refraction using huygen's principles. (56)

10. Explain frensel's distance. (73)

5Marks :

1. Explain magnification in near point focusing in simple microscope. (87)

2. Explain magnification in normal focusing in simple microscope. (88)

3. Explain resolving power of microscope. (89)

4. Explain compound microscope. (90)

5. Write uses of polaroids. (84)

6. Explain young's double slit experiment. (63)

7. Explain diffraction in single slit. (70)

8. Explain diffraction in grating. (74)

9. Explain hypermetropia (or) farsightedness. (96)

10. Explain myopia (or) nearsightedness. (95)

Unit –8 Dual Nature of Radiation & Matter

2Marks :

1. Define surface barrier. (109)

2. Define work function. (109)

3. Define thermionic emission. (110)

4. Define field emission. (110)

5. Define photo electric emission. (111)

6. Write photo electric effect. (113)

7. What are photo sensitive materials. (113)

8. Define stopping (or) cut off potential. (115)

9. Write brems strahlung (or) braking radiation. (131)

10. Define characteristic of x – ray spectra. (131)

11. Define secondary emission. (111)

12. Define photo emissive cell. (121)

13. Define photo voltaic cell. (121)

14. Define photo conductive cell. (121)

15. Define x – ray. (130)

16. Define continuous x – ray. (131)

17. Define threshold frequency. (116)

3Marks :

1. Explain applications of x – ray. (132)

2. Explain de Broglie wave length of matter waves. (124)

3. Explain de Broglie wave length of electrons. (124)

4. Explain applications of photo cell. (122)

5. Explain photo emissive cell. (121)

6. Explain effect of intensity of incident light on photoelectric current. (113)

7. Explain effect of potential difference on photoelectric current. (114)

8. Explain effect of frequency of incident light on photoelectric current. (115)

5Marks :

1. Explain laws of photoelectric effect. (116)

2. Explain characteristics of photons. (119)

3. Explain Einstein photo electric equation. (119)

4. Explain davission – germer experiment. (125)

5. Explain electron microscope. (126)
6. Explain characteristic x -ray spectra. (131)

Unit – 9 Atomic and Nuclear Physics

2Marks :

1. Define nuclear fusion. (184)
2. Define nuclear reactor. (182)
3. Define chain reaction. (180)
4. Define nuclear fission. (179)
5. Define mean life. (176)
6. Define half life. (175)
7. Define one Becquerel. (175)
8. Define one curie. (175)
9. Write law of radio active. (173)
10. Define radio activity. (169)
11. Write gamma decay. (173)
12. Define beta decay. (171)
13. Define β^- - decay. (171)
14. Define β^+ decay. (171)
15. Define alpha decay. (169)
16. Write average binding energy. (167)
17. Define mass defect. (166)
18. Define binding energy. (158)
19. Define ionization potential. (158)

20. Define ionization energy. (158)
21. Define excitation potential. (158)
22. Define excitation potential. (158)
23. Define impact parameter. (150)
24. Define distance of closest approach. (150)
25. Write principle of thomson's experiment. (143)
26. Write principle of millikan's experiment. (145)
27. Define nucleons.
28. Define isotopes. (164)
29. Define isobars. (164)
30. Define isotones. (164)
31. Define 1 amu. (atomic mass unit). (164)
32. Define average binding energy. (167)
33. Define nuclear force.
34. Define radio activity.
35. Define chain reaction. (180)
36. Define moderator. (182)
37. Define control rods. (183)
38. Define shielding. (183)
39. Define cooling system. (183)
40. Define wave number. (162)
41. Write radio active elements.

3Marks :

1. Explain draw backs of Rutherford atom model. (151)
2. Write postulates of bohr atom model. (151)

3. Explain alpha decay. (169)
4. Explain gamma decay. (173)
5. Explain carbon dating. (177)
6. Explain moderators. (182)
7. Explain control rods. (183)
8. Write types of neutrons.
9. Write properties of nuclear force. (168)

5Marks :

1. Explain nuclear reactor. (182)
2. Explain law of radioactive decay. (173)
3. Explain binding energy curve. (167)
4. Write properties of neutrino. (173)
5. Explain limitations of bohr atom model. (163)
6. Explain hydrogen spectrum. (161)
7. Explain energy of an electron in the n^{th} orbit. (155)
8. Explain radius the orbit of the electron. (153)
9. Explain millikan's experiment. (145)
10. Write properties of cathode rays. (143)
11. Explain thomson's experiment. (143)
12. Explain β decay. (171)

Unit – 10 Electronics and Communication

2Marks :

1. Define intrinsic semiconductors. (198)

2. Define extrinsic semiconductors. (200)
3. Define n- type semiconductors. (201)
4. Define p- type semiconductors. (201)
5. Define doping. (200)
6. Define barrier potential. (203)
7. Define rectification. (207)
8. Define half wave rectifier. (207)
9. Define efficiency of rectifier. (208)
10. Define full wave rectifier. (208)
11. Write applications of zener diode. (211)
12. Draw the diagram PN junction diode. (204)
13. Draw the diagram Zener diode. (210)
14. Draw the diagram NPN transistor. (215)
15. Draw the diagram PNP transistor. (215)
16. Define current gain for common – base mode.
17. Define input impedance – common – emitter mode.
18. Define output impedance – common – emitter mode.
19. Define current gain for common – emitter mode.
20. Define amplifier. (225)
21. Write de morgan's first theorem. (231)
22. Write de morgan's second theorem. (232)
23. Define integrated chips. (232)
24. Define modulation. (234)
25. Write amplitude modulation. (234)
26. Write advantage of AM. (234)

27. Write limitation of AM. (234)
28. Define frequency modulation. (235)
29. Write advantage of FM. (235)
30. Write limitation of FM. (235)
31. Define phase modulation. (235)
32. Define forbidden energy gap. (197)
33. Define donor impurities. (200)
34. Define acceptor impurities. (201)
35. Define threshold voltage or cut in voltage or knee voltage. (205)
36. Write biasing a diode. (204)
37. Define forward bias. (204)
38. Define reverse bias. (204)
39. Define LED (light emitting diode). (212)
40. Define photo diode. (213)
41. Write solar cell. (214)
42. Define amplification. (223)
43. Write electronic oscillator. (224)
44. Write difference between sinusoidal and non sinusoidal oscillator. (224,225)
45. Write damped oscillator. (225)
46. Write undamped oscillator. (225)
47. Write components of oscillator.
48. Write tank circuit. (225)
49. Write barkhausen conditions for oscillations. (226)
50. Write feedback ratio.

51. Define range. (237)
52. Define noise. (237)
53. Define bandwidth. (237)
54. Define bandwidth for transmission system. (238)
55. Write method of propagation of electromagnetic waves. (238)
56. Write ground or surface wave propagation. (238)
57. Write sky wave propagation. (238)
58. Define skip distance. (239)
59. Define skip zone. (239)
60. Write space wave propagation. (239)
61. Define fibre optics communication. (240)
62. Write application of fibre communication. (241)

3Marks :

1. Explain half wave rectifier. (207)
2. Explain operating point. (222)
3. Explain amplitude modulation. (234)
4. Explain phase modulation. (235)
5. Explain advantages of AM and its limitation. (234)
6. Write application of LED. (213)
7. Write application of photo diodes. (214)
8. Write application of solar cells. (215)
9. Write application of oscillator. (226)
10. Write application of satellite communication. (240)
11. Explain mobile communication. (241)
12. Explain application of internet. (242)

5Marks :

1. Explain frequency modulation. (235)
2. Explain amplitude modulation. (234)
3. Explain de-morgan's theorem. (231)
4. Explain full wave rectifier. (208)
5. Explain different modes of transistor biasing. (216)
6. Explain advantages of FM and its limitation. (235)
7. Explain transistor acts as switch. (222)
8. Explain transistor acts as amplifier. (223)
9. Explain amplifier. (224)
10. Explain base band or input signal. (236)
11. Explain applications of radar. (241)
12. Write merits and demerits of fibre optic communication. (241)

Unit – 11 Recent Developments in Physics

1. Define Nano science. (255)
2. Define Nanotechnology. (255)
3. What are nano solids. (255)
4. What are bulk solids. (255)
5. Write interdisciplinary nature of nanotechnology. (255)
6. Give the types of manufacturing nano particles. (259)
7. Write robots are composed of three main parts. (264)
8. Define god particles. (275)
9. What are black holes. (276)
10. What are sub – atomic particles.

3Marks :

1. What is robotics. (263)
2. Write three main parts of robotics. (264)
3. Write key components of robotics. (264)
4. Explain different type of parts in robotics. (264)
5. What are the applications of nanotechnology. (260)
6. Explain application of robotics. (266)

5Marks :

1. Write six main types of industrial robots. (265)
2. Write uses of six-axis robots. (265)
3. Write artificial intelligence robots and its work. (265)
4. Explain application of nanomaterial based product in different areas. (260,261)
5. Explain advantages of robotics. (267)
6. Explain disadvantages of robotics. (267)

***** ALL THE BEST *****

PREPARED BY...

RISHI VLOG'S & EDUCATION.

12th Standard Physics Annual Exam 2023 most expected questions

I. 2 Mark questions:

Unit – I (Electrostatics)

1. Write down Coulomb's law in vector form and mention what each term represents.
2. Define 'electrostatic potential'.
3. What is an equipotential surface?
4. Define 'electric flux'.
5. What is Electrostatic shielding?
6. What is polarisation?
7. What is dielectric strength?
8. Define 'capacitance'. Give its unit.
9. What is corona discharge?

UNIT – II (Current Electricity)

10. Define drift velocity.
11. State macroscopic form of Ohm's law.
12. Define electrical resistivity.
13. Define temperature coefficient of resistance.
14. What is electric power and electric energy?
15. State Kirchhoff's current rule.
16. State Kirchhoff's voltage rule.
17. State Joule's law of heating.

UNIT – III (Magnetism and magnetic effects of electric current)

18. Define magnetic flux.

19. State Coulomb's inverse law.

20. State Biot-Savart's law.

21. State Ampere's circuital law.

22. Define ampere.

23. State Fleming's left hand rule.

UNIT – IV (Electromagnetic Induction And Alternating Current)

24. Mention the ways of producing induced emf.

25. How will you define RMS value of an alternating current?

26. Define electric resonance.

27. How will you define Q-factor?

28. Give any one definition of power factor.

29. What are LC oscillations?

UNIT – V (Electromagnetic Waves)

30. What is displacement current?

31. What are electromagnetic waves?

32. Write down the integral form of modified Ampere's circuital law.

33. What are Fraunhofer lines? How are they useful in the identification of elements present in the Sun?

SECTION – III II. 3 Mark questions:

UNIT – I (Electrostatics)

1. What are the differences between Coulomb force and gravitational force?

2. Define 'electric dipole'. Give the expression for the magnitude of its electric dipole moment and the direction.

3. Explain in detail Coulomb's law and its various aspects.

4. Derive an expression for the torque experienced by a dipole due to a uniform electric field.

5. Derive an expression for electrostatic potential due to a point charge.

6. Obtain Gauss law from Coulomb's law.

7. Obtain the expression for capacitance for a parallel plate capacitor.

8. Obtain the expression for energy stored in the parallel plate capacitor.

UNIT – II (Current Electricity)

9. Distinguish between drift velocity and mobility.

10. State the applications of Seebeck effect.

11. Obtain the macroscopic form of Ohm's law from its microscopic form and discuss its limitation.

12. Explain the determination of the internal resistance of a cell using voltmeter.

13. State and explain Kirchhoff's rules.

UNIT – III (Magnetism and magnetic effects of electric current)

14. Give an account of magnetic Lorentz force.

15. State & prove coulomb's inverse square law in magnetism.

UNIT – IV (Electromagnetic Induction And Alternating Current)

16. What are step-up and step-down transformers?

17. Obtain an expression for motional emf from Lorentz force.

18. What do you understand by selfinductance of a coil? Give its physical significance.

19. An inductor of inductance L carries an electric current i . How much energy is stored while establishing the current in it?

20. How will you induce an emf by changing the area enclosed by the coil?

21. Mention the various energy losses in a transformer.

22. Obtain an expression for average power of AC over a cycle. Discuss its special cases.

23. Prove that the total energy is conserved during LC oscillations.

UNIT – V (Electromagnetic Waves)

24. Discuss the Hertz experiment.

25. Explain the types of absorption spectrum.

SECTION – IV III. 5 Mark Questions:

UNIT – I (Electrostatics)

1. Derive an expression for electric field due to an electric dipole at points on the axial line.

2. Derive an expression for electric field due to an electric dipole at points on the Equatorial plane.

3. Derive an expression for electrostatic potential at a point due to an electric dipole.

4. Obtain the expression for electric field due to an infinitely long charged wire.

5. Explain in detail the construction and working of a Van de Graaff generator.

UNIT – II (Current Electricity)

6. Derive an expression for Microscopic model of electric current.

7. Obtain the condition for bridge balance in Wheatstone's bridge.

8. Explain the equivalent resistance of a series and parallel resistor network.

9. Explain the determination of unknown resistance using meter bridge.

UNIT – III (Magnetism and magnetic effects of electric current)

10. Deduce the relation for the magnetic field at a point due to an infinitely long straight conductor carrying current.

11. Obtain a relation for the magnetic field at a point along the axis of a circular coil carrying current.

12. Derive the expression for the force between two parallel, current-carrying conductors.

13. Derive the expression for the force on a current-carrying conductor in a magnetic field.

14. Magnetic field due to a long current carrying solenoid

UNIT – IV (Electromagnetic Induction And Alternating Current)

15. Show that the mutual inductance between a pair of coils is same ($M_{12} = M_{21}$).

16. Show mathematically that the rotation of a coil in a magnetic field over one rotation induces an alternating emf of one cycle.

17. Explain the construction and working of transformer.

18. Derive an expression for phase angle between the applied voltage and current in a series RLC circuit

19. Find out the phase relationship between voltage and current in a pure inductive circuit.

UNIT – V (Electromagnetic Waves)

20. Write down Maxwell equations in integral form.

21. Write down the properties of electromagnetic waves.

22. Explain the types of emission spectrum.

I. 2 Mark questions:

UNIT – VI (Ray Optics)

1. State Snell's law/law of refraction

2. What is principle of reversibility?

3. Why do stars twinkle?

4. What are critical angle and total internal reflection?

5. What is Snell's window?

6. What is power of a lens?

7. What is dispersion?

8. How are rainbows formed?

9. What is Rayleigh's scattering?

10. Why does sky appear blue?

UNIT – VII (Wave Optics)

11. Define wavefront.

12. State Huygen's principle.

13. What are coherent sources?

14. What is intensity (or) amplitude division?

15. What is diffraction?

16. Mention the differences between interference and diffraction.

17. What is polarisation?

UNIT – VIII (Dual Nature of Radiation and Matter)

18. Define work function of a metal. Give its unit.

19. What is photoelectric effect?

20. How will you define threshold frequency?

21. What is a photo cell? Mention the different types of photocells.

22. State de Broglie hypothesis.

23. Why we do not see the wave properties of a baseball?

24. Define stopping potential.

25. What is surface barrier?

26. What is Bremsstrahlung?

UNIT – IX (Atomic and Nuclear Physics)

27. What are cathode rays?.

28. Define the ionization energy and ionization potential.

29. Define impact parameter.

30. Define atomic mass unit u.

31. What is mass defect?

32. What is binding energy of a nucleus? Give its expression.

33. What is meant by radioactivity?

34. Define curie.

UNIT – X (Electronics and Communication)

35. Define forbidden energy gap.

36. What do you mean by doping?

37. Distinguish between intrinsic and extrinsic semiconductors.

38. Give the Barkhausen conditions for sustained oscillations.

39. What are logic gates?

40. What is meant by biasing? Mention its types.

41. Why are NOR and NAND gates called universal gates?

42. What is rectification?

43. What is modulation?

44. What do you mean by skip distance?

UNIT – XI (Recent Developments in Physics)

45. Give any two examples for “Nano” in nature.

46. What are black holes?

SECTION – III II. 3 Mark questions:

UNIT – VI (Ray Optics)

1. Derive the relation between f and R for a spherical mirror.
2. What is optical path? Obtain the equation for optical path.
3. Obtain the equation for apparent depth.
4. Obtain the equation for critical angle.

UNIT – VII (Wave Optics)

5. What is Fresnel's distance? Obtain the equation for Fresnel's distance.
6. Mention the differences between interference and diffraction.
7. Differentiate between Fresnel and Fraunhofer diffraction
8. Differentiate between polarised and unpolarised light

9. State and obtain Malus' law

10. List the uses of polaroids.

11. State Brewster's law

12. Discuss about pile of plates.

13. Discuss about Nicol prism.

UNIT – VIII (Dual Nature of Radiation and Matter)

14. List out the laws of photoelectric effect.

15. Give the construction and working of photo emissive cell.

16. Derive an expression for de Broglie wavelength of electrons.

17. List out the characteristics of photons.

UNIT – IX (Atomic and Nuclear Physics)

18. Write the properties of cathode rays.

19. Calculate the energy equivalent of 1 atomic mass unit

20. Discuss the spectral series of hydrogen atom.

21. Discuss the alpha decay process with example.

UNIT – X (Electronics and Communication)

22. A diode is called as a unidirectional device. Explain.

23. Distinguish between avalanche breakdown and Zener breakdown.

24. Draw the circuit diagram of a half wave rectifier and explain its working

25. State and prove De Morgan's first and second theorem.

26. List out the advantages and limitations of frequency modulation.

27. What is meant by satellite communication? Give its applications.

UNIT – XI (Recent Developments in Physics)

28. Distinguish between Nanoscience and Nanotechnology.

29. What is the difference between Nano materials and Bulk materials?

30. Discuss the functions of key components in Robots?

SECTION – IV. 5 Mark Questions:

UNIT – VI (Ray Optics)

1. Derive the mirror equation and the equation for lateral magnification.

2. Describe the Fizeau's method to determine the speed of light.

3. Obtain the equation for radius of illumination (or) Snell's window.

4. Obtain lens maker's formula and mention its significance.

5. What is dispersion? Obtain the equation for dispersive power of a medium.

UNIT – VII (Wave Optics)

6. Prove law of reflection using Huygen's principle.

7. Prove law of refraction using Huygen's principle

8. Obtain the equation for bandwidth in Young's double slit experiment.

9. Obtain the equation for resolving power of microscope.

10. Discuss the diffraction at single slit and obtain the condition for n th minimum.

11. Discuss about the simple microscope and obtain the equations for magnification for near point focusing and normal focusing.

12. Explain about compound microscope and obtain the equation for the magnification.

13. Obtain the equation for resolving power of microscope.

UNIT – VIII (Dual Nature of Radiation and Matter)

14. Obtain Einstein's photoelectric equation with necessary explanation.

15. Briefly explain the principle and working of electron microscope.

16. Describe briefly Davisson – Germer experiment which

demonstrated the wave nature of electrons.

UNIT – IX (Atomic and Nuclear Physics)

17. Explain the J.J.

Thomson experiment to determine the specific charge of electron.

18. Discuss the Millikan's oil drop experiment to determine the charge of an electron.

19. Obtain the law of radioactivity.

20. Describe the working of nuclear reactor with a block diagram.

UNIT – X (Electronics and Communication)

21. Explain the formation of depletion region and barrier potential in PN junction diode.

22. Explain the construction and working of a full wave rectifier.

23. Transistor functions as a switch. Explain.

24. Explain the basic elements of communication system with the necessary block diagram.