

1. Derive the relation between g and G .
2. What are the differences between mass and weight?
3. Derive an equation for the maximum height reached by a body thrown up?
4. **(Problems of kinematics).**
5. Explain Laundry drier.
6. Write about Centrifuge.
7. Mention the daily life examples of Resonance.
8. What is SHM?
9. What are the factors that are affecting the value of ' g '?
10. What are the uses of IR radiation?
11. What are the common properties of electromagnetic waves?
12. The value of ' g ' is not same throughout the Earth? Why?
13. What are soft ware and hard ware?
14. Draw a neat diagram of Electromagnetic wave.
15. What is the principle of superposition of waves?
16. What are the uses of artificial satellites?
17. Mention the uses of Laser in the field of medicine.
18. State the inverse square law of magnetism.
19. Derive the relation between ' R ' and ' ρ '.
20. Explain the Lenz's law.
21. What are Isobars? Give example.
22. What are the differences between Machine language and High level language?

CHEMISTRY

23. Define I.E. What are the factors affecting it?
24. After filling the ' $3p$ ' orbital the electron enters into ' $4s$ ' but not ' $3d$ '. Why?
25. Electronic configurations of a) copper b) magnesium c) chromium d) sodium.
26. State the Newland's concept of Octaves.
27. Write any two differences between sigma and pi bond.

28. Write about the reactions of alkaline earth metals with oxygen and chlorine.
29. Draw the shapes of 's' and 'p' orbitals.
30. Draw the shape of PCl_5 and NH_3 .
31. Define P^{H} . Calculate the P^{H} of 0.001 M HCl.
32. What is Ionic product of water? What is its value?
33. Write about substitution reactions of Alkanes.
34. Write about addition reactions of Alkenes.
35. Draw the structure of Benzene.
36. What are the functions of protein?
37. What is annealing? What is its use?
38. What are the uses of micro fertilizers?
39. Write about polymerization.
40. Draw the structure of aspirin and paracetamol.
41. What are amino acids? Give example.
42. (Problems of 'SOLUTION'.)
43. What are by products of sugar industry? What are their uses?
44. Write about Isomerism.

SECTION – III (4 Marks)

PHYSICS

1. State Newton's Universal Law of Gravitation. Derive the relation between 'g' and 'G'.
2. Compare centripetal and centrifugal force.
3. Define angle of banking and derive the equation for the angle of banking.
4. What is the principle of launching an artificial satellite? What are its uses?
5. Explain the procedure to determine the value of 'g' by using the simple pendulum.
6. Compare stationary waves and progressive waves.
7. Compare Newton's corpuscular theory of light and Wave theory of light.
8. Explain the reflection and refraction of light by using ripple tank.
9. Explain the working of Laser.

10. What are the uses of Laser in the field of Science and Technology?
11. What are the uses of Laser in the field of medicine, industry, space and defense?
12. What are the properties of junction transistor? What are its uses?
13. Derive $R = R_1 + R_2$. (or) Show that the effective resistance of the series of resistors is equal to the sum of the individual resistances.
14. Derive .
15. State Ohm's law. Explain a procedure to verify it.
16. **(Problem on Household consumption of electricity.)**
17. Explain a procedure to verify the Faraday's second law of electrolysis.
18. Explain the working of an electric motor.
19. What is a chain reaction? How it is controlled by a nuclear reactor?
20. **(Problem on mass defect and binding energy.)**
21. Explain the Nuclear reactor.
22. What are the uses of radio isotopes?
23. What are the properties of junction diode? What are its uses?
24. Write about the parts of a computer by using a block diagram.

CHEMISTRY

25. Write the postulations of Bohr's atomic model.
26. Explain the Hund's rule with one example.
27. Explain the formation of double bond with a diagram.
28. Explain the formation of triple bond.
29. Explain the formation of co-ordinate covalent bond.
30. What is electronic configuration? What are the rules governing the electronic configuration?
31. Explain the formation of sigma and pi bonds.
32. Mention the postulations of Rutherford's atomic model. What are its limitations?
33. How the following properties vary in a period and group of modern periodic table?
A) atomic size B) ionization energy C) electro positive character D) electro negativity

34. What are the properties of modern periodic table?
35. Write about the reactions of alkaline earth metals with the following.
A) oxygen B) hydrogen C) chlorine D) water
36. **(Problems on Molarity, Mole fraction etc)**
37. Explain Arrhenius acid base theory. What are its limitations?
38. How the quality of soap is tested?
39. What is drug? What are the characteristics of an ideal drug?
40. Compare the structure of diamond and graphite.
41. Define solubility. What are the factors affecting the solubility?
42. How a standard solution is prepared?
43. Compare the properties of acids and bases.
44. Mention the steps involved in the manufacturing of soap and detergent.
45. How many types of drugs are there? What are they?