

XL PHYSICS EXPECTATION QUESTIONS – 2024**PREPARED BY Dr.G.THIRUMOORTHY,M.Sc,B.Ed,Ph.D ,PHYSICS****Thiruphysics1994@gmail.com ,8610560810,,**

1. Briefly explain the types of physical quantities.
2. **How will you measure the diameter of the Moon using parallax method?**
3. **Write the rules for determining significant figures.**
4. **What are the limitations of dimensional analysis**
5. **What are the uses of dimensional analysis**
6. Define precision and accuracy. Explain with one example.
7. Explain the principle of homogeneity of dimensions. Give example
8. Define light year
9. **Check the correctness of the equation $\frac{1}{2}mv^2 = mgh$**
10. Define mass
11. Define AU
12. **Define a vector. Give examples**
13. **Define a scalar. Give examples**
14. Define displacement and distance.
15. Define angular displacement and angular velocity
16. What is non uniform circular motion?
17. **Write down the kinematic equations for angular motion.**
18. Write the projection motion examples
19. State Newton's second law
20. State Newton's third law.
21. Using free body diagram, show that it is easy to pull an object than to push it.
22. What is the meaning by 'pseudo force'?
23. Under what condition will a car skid on a leveled circular road?
24. State the empirical laws of static and kinetic friction.
25. **Write the differences between conservative and Non-conservative forces. Give two examples each**
26. **Explain the characteristics of elastic and inelastic collision**
27. **Define Coefficient of restitution**
28. **Define Law of conservation of energy**
29. Define centre of mass.
30. Define couple
31. Define centre of gravity.
32. **State conservation of angular momentum.**
33. What is the difference between sliding and slipping?
34. Give any two examples of torque in day-to-day life
35. What is the relation between torque and angular momentum
36. **State Kepler's three laws.**
37. **State Newton's Universal law of gravitation**
38. Will the angular momentum of a planet be conserved? Justify your answer.

39. Define the gravitational field. Give its unit
40. Why is the energy of a satellite (or any other planet) negative?
41. Why is there no lunar eclipse and solar eclipse every month?
42. How will you prove that Earth itself is spinning?
43. State the principle and usage of Venturimeter.
44. What do you mean by capillarity or capillary action?
45. Two streamlines cannot cross each other. Why?
46. Define terminal velocity
47. **Distinguish between streamlined flow and turbulent flow**
48. State the law of floatation.
49. **State Archimedes principle.**
50. **State Pascal's law in fluids.**
51. **Which one of these is more elastic, steel or rubber? Why?**
52. **Define stress and strain.**
53. **State Hooke's law of elasticity**
54. **Define Poisson's ratio**
55. A spring balance shows wrong readings after using for a long time. Why?
56. Define the coefficient of performance.
57. Why does heat flow from a hot object to a cold object?
58. Define heat engine
59. **State Clausius form of the second law of thermodynamics**
60. What is meant by a reversible and irreversible processes?
61. Define one calorie.
62. **State Zeroth law of thermodynamics**
63. What is a black body?
64. **What is Wien's law?**
65. **State Stefan-Boltzmann law**
66. Define specific heat capacity and give its unit.
67. An object contains more heat' - is it a right statement? If not why
68. Obtain an ideal gas law from Boyle's and Charles' law
69. Define one mole.
70. What is PV diagram?
71. **Why moon has no atmosphere**
72. Write the expression for rms speed, average speed and most probable speed of a gas molecule.
73. What is the relation between the average kinetic energy and pressure?
74. **Define the term degrees of freedom**
75. **State the law of equipartition of energy.**
76. What is the reason for Brownian motion?
77. **State the laws of simple pendulum?.**
78. **Explain resonance. Give an example**
79. Define intensity of sound and loudness of sound
80. Explain Doppler Effect

81. Explain red shift and blue shift in Doppler Effect.
82. Write down the factors affecting velocity of sound in gases.
83. Briefly explain the difference between travelling waves and standing waves
84. Difference between longitudinal and transverse waves
85. Write down the relation between frequency, wavelength and velocity of a wave.
86. **Discuss the law of transverse vibrations in stretched strings**
87. **What are geostationary and polar satellites?**
88. What is the difference between gravitational potential and gravitational potential energy.
89. **Discuss the properties of scalar and vector products.**
90. Application surface tension
91. Explain various types of friction. Suggest a few methods to reduce friction
92. Explain the concept of inertia. Write two examples each for inertia of motion, inertia of rest and inertia of direction
93. **What are concurrent forces? State Lami's theorem.**
94. Application of Angle of Repose
95. **The following systematic steps are followed for developing the free body diagram:**
96. Explain Types of motion
97. Define weight
98. Explain in detail the Eratosthenes method of finding the radius of Earth
99. **What is Reynold's number? Give its significance.**
100. **Explain the different types of modulus of elasticity.**