

**Guru Gobind Singh Public School,
Sector V/B, S. City
Science Assignment 2019**

Class : IX

Section A Physics

1. What is the slope of $d - t$ graph when a body moves with uniform velocity.
2. Using a horizontal force of 200N, we intend to move a wooden cabinet across a floor at constant velocity. What is the friction force that will be exerted on the cabinet?
3. Identify the quantity which represents rate of change of velocity?
4. Give differences between :
(a) Distance and displacement (b) Speed and velocity
(c) Acceleration and retardation (d) Uniform circular motion and uniform linear motion
5. What is the relation between an object on the Moon (W_m) and on the earth (W_e) ?
6. Define force and unit of force. Explain Newton's first law of motion in brief.
7. What is the acceleration produced by force of 16N exerted on an object of mass 4 Kg?
8. Define momentum. A force of 5N gives a mass m_1 , an acceleration of 08 meter per second square and a mass m_2 , an acceleration of 24 meter per second square. What acceleration would it give if both the masses are tied together?
9. Why is it advised to tie any luggage kept on the roof of a bus with a rope ?
10. State Newton's Second Law of motion .
11. Deduce the following equation of motion by graphical method
(a) $S=ut + \frac{1}{2} at^2$ (b) $V^2 - u^2 = 2as$ (c) $V = u + at$
12. What is the SI unit of gravitational constant & derive its relation with g ?
13. Derive an expression to prove the law of conservation of momentum. Write its two applications.
14. Why the weight of an object on the moon $\frac{1}{6}^{th}$ of the weight of the earth ?
15. A car A of mass 1200 kg, travelling at 25 m/s collides with another car B of mass 1000 kg travelling at 15 m/s in the same direction . After collision, the velocity of car A becomes 20 m/s . Calculate velocity of car B after collision.
16. A force of 5N gives a mass m_1 , an acceleration of 08 meter per second square, and a mass m_2 , an acceleration of 24 meter per Second Square. What acceleration would it give if both the masses are tied together?
17. The gravitational force between two objects is 100 Newton. How should the distance between these objects be changed so that force between them becomes 50 Newton ?
18. Derive mathematically, Universal Gravitational Constant G is equal to the gravitational force of attraction F between two bodies.
19. The mass of a goods lorry is 4000kg and the mass of goods loaded on it is 20000kg. If the lorry is moving with velocity of 2 m/s what will be its momentum ?
20. The ratio of orbital radii of two satellites of a planet is 1:2. What is the ratio of their time periods ?

e) Temperature in the thermometer does not change with change in state of matter.

Answer the following questions:

9. Write four characteristics of particle of matter.
10. Name the process which occurs when few drops of Dettol is added to water.
11. Find the valency with the help of criss-cross method
 - a) CaCl_2
 - b) HCl
 - c) H_2O
12. Find ratio by mass
 - a) H_2O
 - b) CO_2
 - c) NH_3
13. Write the chemical formula of the given compound
 - a) Calcium carbonate
 - b) Sodium Sulphate
 - c) Ammonia
 - d) Potassium Chloride
14. Draw a neat well labelled diagram of
 - a) separating funnel
 - b) distillation
 - c) Fractional distillation
15. Solve the given numerical
 - a) Hydrogen and Oxygen combines in the ratio of 1:8 by mass to form H_2O . what mass of oxygen gas would be required to react completely with 3g of Hydrogen gas?
16. a) In a reaction 5.3g of Na_2CO_3 reacted with 6gm of $\text{C}_2\text{H}_5\text{COOH}$. The products were 2.2g CO_2 , 0.9gm H_2O and 8.2g $\text{C}_2\text{H}_5\text{COONa}$. Prove the law of conservation of mass.
 - b) 220g of salt is present in 660g of solution. Calculate the mass percentage of the solution.
17. Mole concept: find the no. of moles in
 - 1) a) 12g of O_2 gas
 - b) 20gm of H_2O
 - c) 22gm of CO_2
 - 2) find the mass of
 - a) 1 mole of N atom
 - b) 10 mole of Na_2SO_3
 - c) 4 mole of Al atom
18. Write four postulates of "Dalton's atomic Theory".
19. Write Latin names of Sodium, Potassium, Iron, Copper.
20. Classify the compound as Element, compound, Mixture
 - (a) Sodium
 - (b) Soil
 - (c) Silver
 - (d) Silicon
 - (e) Soap
 - (f) Air
 - (g) Carbon dioxide
 - (h) Blood
 - (i) Sugar solution
 - (j) Calcium carbonate
 - (k) Methane (CH_4)
 - (l) Tin

Section – C Biology

21. Draw a labelled diagram of stem tip to show the meristematic tissues. Mention the functions of different types of meristematic tissues.
22. Identify the type of tissue in following: skin, bark of tree, bone, lining of kidney tubule.
23. Differentiate between :
 - a) bone and cartilage
 - b) tendon and ligament
 - c) culture fishery and capture fishery
 - d) xylem and phloem
 - e) sclerenchyma and parenchyma
 - f) micronutrients and macronutrients
24. What happens when raisins are kept in water ?
25. Why are mitochondria called powerhouse of cell ? Give two similarities between mitochondria and plastid.
26. Name one local and one exotic breeds of bees. Write the merits of Italian Bee over other varieties.
27. Give reasons :
 - a) bacteria are prokaryotic cells.
 - b) branches of a tree move and bend freely in high wind velocity.
28. A farmer wants to harvest more than two varieties at a time from his crop field. He has no idea of cropping patterns. Suggest him one method to get the desired result. Also states 3 advantages of cropping pattern.
29. Draw labelled diagram of a neuron.
30. Water hyacinth floats on water surface. Explain.
31. Why are xylem and phloem called as complex tissues ? How are they different from one another?
32. Give any two common diseases of cattle and their causal organisms.
33. Name the chemicals which are deposited in the cell wall of sclerenchyma and collenchyma.

34. Write the difference between aerenchyma and chlorenchyma with examples.
35. Define:
a) plasmolysis b) vermicompost c) green manure d) mixed cropping.
36. Draw a well labelled diagram of an eukaryotic nucleus. How is it different from nucleoid.
37. Differentiate between rough and smooth endoplasmic reticulum. How is endoplasmic reticulum important for membrane biogenesis ?
38. Name two cell organelles in a plant cell that contain their own genetic material and ribosomes.
39. Name the different components of xylem and draw a living component.
40. Draw a neat diagram of a plant cell and label any three parts which differentiate it from animal cell.

