Question Paper 2017 set 1

CBSE Class 11 Physics

1. Define the term elasticity

2. Write the SI unit of Gravitational constant.

3. Fill up 3.0 m/s^2 =_____km/hr^2

4. Under what condition is the relation s=ut is correct.

5. State relation between impulse and momentum

6. State Hooke's Law.

7. State Boyle's Law

8. Action and reaction forces do not balance each other why?

9. Calculate the degrees of freedom for monoatomic, diatomic and triatomic gas

10. What do you mean by mean free path and write its formula.

11. Derive an expression for the work done during Isothermal expansion

12. State the second law of thermodynamics and write its two applications of it.

13. The position of a particle is given by r=3.0 t $\hat{i} - 2.0t^2\hat{j} + 4.0\hat{k}$ unit metre where t in seconds and cofficients have the proper units for r to be in metres. Find the velocity and acceleration of the particle.

14. Two billiard balls each of mass 0.05kg moving in opposite direction with speed 6 m/s collied and rebound with the same speed. What is the impulse imparted to each ball due to other?

15. E, m, L and denote energy, mass, angular momentum and gravitational constant respectively. Determine the dimension of EL^2/m^5G^2

16. Define modulas of elasticity and write down its units and Dimensions.

17. Write down the relation between three types of moduli and poissons ratio.

18. The force acting on an object of mass m travelling of velocity v in a circule of radius r is giving by $f = mv^2/r$. The measurements recorded as m = 3.5kg ± 0.1 kg v = 20m/s ± 1m/s & r = 12.5m ± 0.5m find the maximum possible (i) fractional error (ii) percentage error in the measurement of force.

19. Define v = u + at from velocity--time graph.

20. How is centripetal force provides in case of the following?
(i) motion of planet around the sun
(ii) motion of moon around the sun
(iii) motion of an electron around the nucleus in an atom.

21. Determine the volume of 1 mole of any gas at S. T. P., assuming it behaves like an ideal Gas.

22. A carnot engine develops 100H.P. and operates between 27°C and 227°C.Find.
(i) Thermal effiency.
(ii) Heat supplied.
(iii) Heat rejected?

23. Explain and derive parallelogram law of vector additor.

24. State and prove the function of refrigerator. With the help pf labelled diagram.

25. A stone is projected at an angle ∅ with an initial velocity u under the effect of gravity then derive the expression for
(a) Horizontal range.
(b) Maximum height.
(c) Time of flight

26. (a) How does carnot cycle operates
(b) Why does absolute zero not correspond to zero energy