Q1 Write the dimensions of the following:

   a) Impulse b) Gravitational constant.

Q2 Name the seven basic fundamental quantities and their units.

Q3 Convert 1kg m^2/sec^2 to g cm^2/sec^2.

Q4 Find the value of a force of 100N on a system based upon meter,kilogram and minute as fundamental units.

Q5 Check the accuracy of the relation h=2Scosα/rdg. Where S is surface tension, r is radius ,d is density and g is accerlation due to gravity.

Q6 Convert 100J into ergs.

Q7 If the units of force ,energy and velocity are 10N,100J and 5m/sec.Find the Units of Length,Mass and time.

Q8 Write the dimension of a/b in the relation $F=a\sqrt{x}+bt^2$, F is force x is distance and t is time.

Q9 The wavelength of waves in a string depends upon length(l) ,tension (T) and mass per unit length (m).Derive the formulae dimensionally.

Q10. What is absolute error? The temperature of two bodies measured by a thermometer are $t_1 = 20°C \pm 0.5°C$ and $t_2 = 50°C \pm 0.5°C$. What are the temperature difference and the error therein?

Q11.What is the accerlation of the particle if the relation between time t and distance x is $t=ax^2+bx$, where a and b are constants.

Q12. The displacement of a body is given to be proportional to the cube of time elapsed. What is the nature of the acceleration of the body? Justify your answer.
 A car accelerates from rest at a constant rate of α for some time; after which it decelerates at constant rate of β to come to rest. If the total time elapsed is T second.
(a) Draw a velocity time graph for the motion.
 (b) Calculate maximum velocity attained in terms ofα, β and T.

Q13. A gas bubble from an explosion under water oscillates with a period T proportional to static pressure P, density of water and total energy E. Find the values of a, b and c.

Q14. Write the dimensions of the following quantities:

 a)Universal Gravitational constant b)Stress c)Coefficient of viscosity

Q15 Draw velocity time graph for an object starting from rest

Q16 The velocity of sound in a medium is said to depend on elasticity and density of the medium.
Deduce the relation between them.