Q 01.　　　The number of significant figures in 0.06900 is

　　　　　(a)　　5　　　(b)　　4　　　(c)　　2　　　(d)　　3

Q 02.　　　A lift is coming from 8th floor and is just about to reach 4th floor. Taking ground as the origin and positive

　　　direction upwards for all quantities, which one of the following is correct

　　　　　(a) x<0,v<0, a>0　　　　(b) x>0, v<0, a<0　　　　(c) x>0,v<0, a>0　　　　(d) x>0, v>0, a<0

Q 03.　　　The horizontal range of a projectile fired at an angle of 15^0 is 50 m. if it is fired with the same speed at an

　　　angle is 45^0, its range will be

　　　　　(a)　　60m　　(b)　　71m　　(c)　　　100m　(d)　　141m

Q 04.　　　Conservation of momentum in collision between particles can be understood from

　　　　　(a) conservation of energy　　　(b) newton's first law only　　　(c) newton's 2nd law only

　　　　　(d) both newton's first and 2nd law

Q 05.　　　During inelastic collision, which remain conserved

　　　　　(a) total kinetic energy　(b) total mechanical energy.　　　(c) total linear momentum

　　　　　(d) speed of each body.

Q 06.　　　For which of the following does the center of mass lies outside the body.

　　　　　(a) a pencil　　(b) a shot-put　(c) a dice　　　(d) a bangle

Q 07.　　　Modulus of rigidity of ideal liquids is

　　　　　(a) infinity　　(b) zero　　　(c) unity　　　(d) some finite small non-zero constant value

Q 08.　　　With increase in temperature, viscosity of gases

　　　　　(a) decreases　(b) increases　(c) remain same　　　(d) become zero.

Q 09.　　　An ideal gas undergoes isothermal process from some initial state I to final state f. choose the correct

　　　alternatives

　　　　　(a) dU = 0　　(b) dq = 0　　　(c) dq = dU　　(d)　　dQ = dw

Q 010.　　　Magnitude of velocity is equal to _____.

Q 011.　　　A body which mover under the effect of gravity only is known as _____.

Q 012.　　　Friction between two body is due to _____ forces.

Q 013.　　　Force and be defined as the rate of change of _____.

Q 014.　　　Newton's law of gravitation follows _____.

Q 015.　　　With increase in elastic fatigue, _____ of body decreases.

Q 016.　　　A substance which flows under the effect of external force is known as _____.

Q 017.　　　The volume of a cube of the side 1 cm is equal to _____ m^3.

Q 018.　　　A vehicle moving with the speed of 18 km h^{-1} covers _____ m in 1 s.

Q 019.　　　The heat which converts the state of substance directly form solid to gases is known as _____.

Q 020.　　　Oscillatory motion is _____ periodic motion.

Q 021.   The length , breadth and the thickness of a rectangular sheet of metal are 4.234m, 1.005m and 2.01 cm respectively. Give the are and the volume of the sheet to correct significant figures.

Q 022.   When the planet Jupiter is at a distance of 824.7 million kilometers from the earth. Its angular diameter is measured to be 35.72' of arc. Calculate the diameter of Jupiter.

Q 023.   A three wheeler starts from rest, accelerates uniformly with 1 ms^{-2} on a straight road for 10 s, and then moves with uniform velocity. Plat the distance covered by the vehicle during the nth second versus n.

Q 024.   A ceiling of a long hall is 25 m high. What is the maximum distance that a ball thrown with a speed of 40 ms^{-2} can go without hitting the ceiling of the hall.

Q 025.   A rocket with a lift off mass 20000kg is blasted upwards with an initial acceleration of 5 ms^{-2}. Calculate the initial thrust of the blast.

Q 026.   The bob of pendulum is released from a horizontal position. If the length of the pendulum is 1.5m, what is the speed with which the bob arrives at the lowermost point, given that it is dissipated 55 of the initial energy against the air resistance.

Q 027.   A car weighs 1800 kg. the distance between its front and back axles is 1.8m. its center of gravity is 1.05 m behind the front axle. Determine the force exerted by the level ground on each front wheel and each back wheel.

Q 028.   Suppose there existed a planet that went around the sun twice as fast as the earth. What would be its orbital size as compared to that of earth.

Q 029.   A 50 kg girl wearing high heel shoes balances on a single heel. The heel is circular with a diameter 1.0 cm. what is the pressure exerted by the heel on the horizontal floor?

Q 030.   The coefficient of the volume expansion of the glycerin is $49.10_{-5}{}^{K}$-1. What is the fractional change inb its density for a 30^{0}C rise in temperature.

Q 031.   Show that for a particle in linear S.H.M the average kinetic energy over a period of oscillation equals the average potential energy over the same period

Q 032.   A steel rod 100 cm long is clamped at its middle. The fundamental frequency of longitudinal vibrations of the rod are given to be 2.53 kHz. What is the speed of the sound in steel ?

Q 033.   What are the fundamental quantities and derived quantities. Explain.

Q 034.   How the random errors can be removed.

Q 035.   Give any two applications of dimensional analysis. Explain any one with a suitable example.

Q 036.   Show that the graph under velocity time curve gives displacement.

Q 037.   Derive the relation for distance traveled in nth second.

Q 038.   What is the difference between vector and scalar. Explain any 4 types of vectors.

Q 039.   Explain zero vector. Give its properties.

Q 040.   What is a projectile. Give any two examples.

Q 041.   How newton's 1st law resembles with the Galileo Galilei's law of inertia.

Q 042.   Explain law of conservation of momentum.

Q 043.   Explain friction. Give its types.

Q 044.   Give advantages and disadvantage of friction.

Q 045.   Derive an expression for the kinetic energy.

Q 046.   Explain Power. Give and define its SI unit.

Q 047.   Derive an expression for the angular momentum in Cartesian form.

Q 048.   Give relation between kinetic energy and moment of inertia.

Q 049.   Show that variation of gravity is more due to height than due to depth.

Q 050.   Explain satellite and it principle for launching

Q 051.   Explain hooks law and modulus of elasticity.

Q 052.   What do you mean by pressure. explain it.

Q 053.   Why does a metal bar appear hotter than a wooden bat at the same temperature.

Q 054.   Explain zeroth law of thermodynamics.

Q 055.   Write the assumptions made in kinetic theory of gases.

Q 056.   What do you superposition of waves. Explain it when two waves are moving with (1) amplitude in same direction, (2) amplitude in opposite direction.

Q 057.   Differentiate between periodic motion and oscillatory motion.