DELHI PUBLIC SCHOOL NEWTOWN
SESSION 2021-2022
HALF YEARLY EXAMINATION

CLASS IX **FULL MARKS: 30**

SUBJECT: PHYSICS (PAPER II) **TIME: 45 MINS**

Q1. The pendulum bob takes 0.2s to move from mean position to one extreme end. The time period of the pendulum is [1]

(a) 0.4s
(b) 0.8s
(c) 0.6s
(d) 1s

Q2. The size of a nucleus is usually expressed in [1]

(a) mm
(b) nm
(c) micron
(d) Fermi

Q3. A car moving with a speed $5ms^{-1}$ is stopped by applying brakes in 5s. What will be the speed 2s after brakes are applied? [2]

(a) $2ms^{-1}$
(b) $4ms^{-1}$
(c) $3ms^{-1}$
(d) $1ms^{-1}$

Q4. For a uniformly retarded motion, the velocity-time graph is [1]

(a) A straight line inclined to the time axis
(b) A curve sloping down
(c) A straight line perpendicular to the time axis
(d) A straight line parallel to the time axis

Q5. Action – reaction forces [1]

(a) Act on same body in opposite direction
(b) Act on different bodies in opposite direction
(c) Act on different bodies but in same direction
(d) Act on same body in same direction

Q6. A force applied on a non-rigid body **[2]**

(a) Cause motion but doesn't cause separation between constituent particles
(b) Can cause both motion and separation between constituent particles
(c) Can produce only separation between particles but not motion in the body
(d) Cannot produce motion of the body or separation between the particles

Q7. A body weighs 250 gf in air and 110gf when completely inside water. The upthrust and loss in weight of the body are **[2]**

(a) 110gf , 110gf
(b) 110gf, 140gf
(c) 140gf, 160gf
(d) 140gf, 140gf

Q8. Atmospheric pressure on earth's surface is P and inside a mine is P_1. Then **[1]**

(a) $P > P_1$
(b) $P = P_1$
(c) $P < P_1$
(d) Only P exists as P_1 will be zero inside the mine

Q9. A stone is thrown vertically up with a velocity 50m/s. Taking 'g' as 10m/s^2, the height reached and total time of fall will be **[2]**

(a) 125m, 10s
(b) 250m, 12 s
(c) 122.5m, 12s
(d) 150m, 8s

Q10. The thimble in a screw gauge **[1]**

(a) Advance the screw gently by turning effect
(b) Holds the object gently between stud and spindle
(c) Marks the base line and main scale
(d) Marks the circular scale

Q11. A force of 40kgf is applied to the smaller piston of a hydraulic machine. If diameters of smaller and larger piston be 4 cm and 20 cm , force on the larger piston is **[2]**

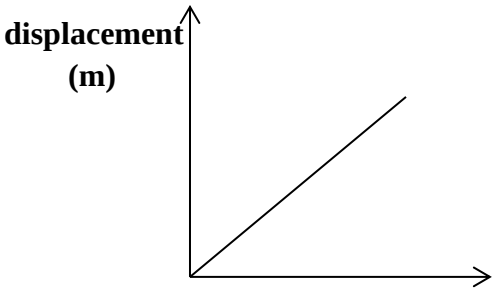
(a) 1000 kgf
(b) 1200 kgf
(c) 1250 kgf

(d) 2000 kgf

Q12. How is the gravitational force between two masses affected if separation between the masses is doubled? [1]

(a) Force is doubled than previous force
(b) Force becomes half of original force
(c) Force becomes one-fourth of original force
(d) Force becomes four times the original force

Q13. The physical quantity obtained from the slope of the graph is [1]



(a) Velocity
(b) Square of velocity
(c) Acceleration
(d) Half the acceleration

Q14. The height of mercury barometer is 75cm at sea level and 50cm at the top of a hill. The ratio of density of mercury to air is 10000:1, then the height of the hill is [2]

(a) 750 m
(b) 250 m
(c) 2.5 km
(d) 1.25 km

Q15. The pressure inside a liquid is same at all points along ____. [1]
(a) A vertical plane
(b) A horizontal plane
(c) An inclined plane

Q16. The value of 1angsrom (Å) is numerically equal to [1]
(a) 10^{-10} cm
(b) 10^{-8} m

(c) 0.1nm
(d) 10^4 micron

Q17. Two simple pendulums having equal length but the bobs are made of aluminium and iron respectively, are made to oscillate at a place. It is observed that [1]
(a) Aluminium bob will make the first pendulum swing faster
(b) Both pendulums will have same amount of oscillation
(c) Initially the pendulum having iron bob swings faster, but then slows down
(d) The pendulum with iron bob being heavier snaps off from point of suspension.

Q18. A car moving with uniform velocity of $30ms^{-1}$ is stopped in 2s by applying a force of 1500N. The retardation produced and mass of the body is [2]
(a) $15ms^{-2}$ and 100 kg
(b) $7.5ms^{-2}$ and 50 kg
(c) $10ms^{-2}$ and 75 kg
(d) $15ms^{-2}$ and 200 kg

Q19. When a bunch of feathers and a pebble of same mass falls (i) in air and (ii) in vacuum [2]
(a) The bunch of feathers will fall earlier in both cases
(b) The pebble falls faster in both cases
(c) Both fall at the same time in both cases
(d) The pebble falls faster in first situation, and both fall together in latter case

Q20. Two balls of masses m and 3m move with velocities 3v and v respectively. The ratio of forces required to stop them at the same time will be [2]
(a) 1:3
(b) 3:1
(c) 1:2
(d) 1:1

Q21) The seat belts are provided in the cars so that if the car stops suddenly due to an emergency braking, the persons sitting on the front seats are not thrown forward violently and saved from getting injured. Guess the law due to which a person falls in forward direction on the sudden stopping of the car? (1)

(a) Newton's first law of motion
(b) Newton's second law of motion
(c) Newton's third law of motion
(d) Newton's law of gravitation