long-range forces (e)
large compared with their dimensions.

23) In a practical session, values of a measured quantity P were plotted against the values of another measured quantity Q. The graph was a straight line and the slope of the line was-1. What can be inferred?
(a) Quantity P increases with increasing values of Q,
(b) Quantity P decreases with increasing values of Q
(c) Quantity P decreases with decreasing values of Q
(d) Both P and Q are constant

24) A non-uniform tube AB is used to transfer water from end A to end B, if P_A=120 Pa; Va = 1m/s; y_A=6m; P_B = 200 Pa; v_B=1.5m/s. Take g = 10 m/s2; Þwater=103 kg/m3. Find y_B (a) 5.93 m (b) 5.90m (c) 6.00 m (d) 5.94 m.

25) When there is transformation of physical quantities between frames of references, which of the following sets of quantities remain constant? (a) velocity, momentum, mass (b) mass, force, momentum (c) mass, acceleration, force (d) velocity, acceleration, momentum.

26) A uniform metre rule resting on a knife-edge placed at the 50 cm mark, is balanced horizontally by hanging a mass of 2kg at 90 cm mark and X at 20 cm mark. Find X. (a) 2.67kg (b) 2kg (c) 2.50kg (d) 2.22kg.

27) A simple pendulum of length 1 m goes through a curved distance 10cm. What angle does it turn through to achieve this? (a) 0.1 rad (b) 10 rad (c) 0.01 rad (d) π rad.

28) If the simple pendulum spends 25 s to complete 20 oscillations, what is the period of its oscillation?
(a) 2s (b) 1.25s (c) 2.5s (d) 0.8s.

29) The correct unit for surface tension is (a) N/m (b) N/m^2 (c) N/m^3 (d) N^2/m

30) A simple Harmonic motion is described by the equation, $y = 2\sin(2\pi+\varphi)$. What is the amplitude of the motion? (a) 2π m (b) 2/3 m (c) 2.10m (d) 2 m.

31) Calculate the angle in degrees between $\vec{A} = 2i + 2j - k$ and $B = 6i-3j+2k$. (a) 79° (b) 101° (c) 16° (d) 11°

32) A body of mass 1.5kg is whirled in a circle by a string of length 20cm. If the period of revolution is 0.5s. Calculate the force on the body by the string, (a) 47.4n (b) 31.6N (c) 15.8N (d) 63.2N

33) The process of reducing heat loss in a calorimetric experiment through conduction and radiation by surrounding it with a poor conductor is called (a) Lagging (b) cooling (c) blocking (d) charging.

34) The phenomenon that opposes the uniform motion of a particle as it moves along a circular path as its direction changes is known as (a) Gravitational force (b) Centrifugal force 9c) Centripetal force (d) none of the above.

35) A 90kg man stands in an elevator. Determine the force, which the floor of the elevator exerts on the man, when the elevator is rising at constant speed. (a) 702N (b) None (c) 1062N (d) 882N

36) A flywheel of a gasoline engine is required to give up 300J kinetic energy while its angular velocity decreases from 600 rev/min to 540 rev/min. What is the moment of inertia required? (a) 15.19Kgm^2 (8.77 x10-3kgm^2 (c) 31.58kgm^2 (d)3.0x10-2kgm_2

37) A grinding stone in the form of solid cylinder has a radius of 0.5m and a mass of 50kg. what torque will bring it from rest to an angular velocity of 300 rev/min in 10s?
(a) 187.5Nm

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