RAVI MATHS TUITION CENTER, CH-82. WHATSAPP - 8056206308

Model paper 2

11th Standard

Physics

Reg.No. : | | | | | | |

Exam Time : 03:00:00 Hrs

Total Marks : 70

15 x 1 = 15

1) If the coordinate axes (x, y, z) are drawn in anticlockwise direction then the co-ordinate system is known as

(a) Cartesian coordinate system (b) right-handed coordinate system (c) left-handed coordinate system (d) cylindrical coordinate system

2) During a projectile motion if the maximum height equals the horizontal range, then the angle of projection with the horizontal is:

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

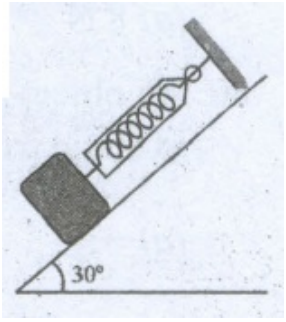
3) A ship of mass 3×10^6 kg initially at rest is pulled by a force of 6×10^4 N through a distance of 4m. The speed of the ship is (Assume resistive of water is negligible)

(a) 1.5 m/s (b) 20 m/s (c) 0.5 m/s (d) 0.4 m/s

4) A particle revolves round a circular path. The acceleration of the particle is:

(a) along the circumference of the circle (b) along the tangent (c) along the radius (d) zero

5) A body of mass 5 kg is suspended by a spring balance on an inclined plane as shown in figure. The spring balance measure.



(a) 50 N (b) 25 N (c) 500 N (d) 10 N

6) The speed of an object v = 90km/h. The same quantity of speed in m/s is

(a) 90 (b) 25 (c) 45 (d) 180

7) Retardation means:

(a) decreases with time (b) increases with time (c) increases and decreases (d) decreases and increases

8) A car covers half of its journey with a speed of 10 ms^{-1} and the other half by 20 ms^{-1} The average speed of car during the total journey is

(a) 70 ms^{-1} (b) 15 ms^{-1} (c) 13.33 ms^{-1} (d) 7.5 ms^{-1}

9) In an elastic collision ------- is conserved

(a) kinetic energy (b) momentum (c) both (a) and (b) (d) neither (a) nor (b)

10) If a car at rest accelerates uniformly to a speed of 144 krn/h in 20 sec, it covers a distance of

(a) 1440cm (b) 2980cm (c) 20m (d) 400m

11) In whirling motion, if the string is cut suddenly, the stone moves tangential to circle is an example for

(a) Inertia of motion (b) Inertia of direction (c) Inertia of rest (d) back pull

12) In an expression, four quantities a, b, c and d are measured with % error. 1%,2%,3% and 4% respectively. Quantity P is calculated as follows P = $\frac{a^3b^2}{cd}$ % error in P is:

(a) 10 (b) 7 (c) 4 (d) 14

13) 1 pa is equal to

(a) $1Nm^{-2}$ (b) $1Jm^{-2}$ (c) $1Nm^{-1}$ (d) $1Jm^{-1}$

14) Swimming is possible on account of

(a) I law of motion (b) II law (c) III law (d) Newton's law of gravitation

15) A force F is applied on to a square plate of side L.If the percentage error in determining L is 2% and rhat in F is 4%, the percentage error in pressure is

(a) 8% (b) 4% (c) 6% (d) 3%

6 x 2 = 12

16) Write the relation between summation and integration.

17) What is the work done by centripetal force in moving a body through half cycle on the circular path of radius 35 m?

18) Define S.H.M.

19) What is Leap year?

20) Define Dimensional Constant. Give example.

21) What is meant by 'Mechanical equilibrium'?

6 x 3 = 18

22) Find out unit vector of vector $\vec{A} = 3\hat{i} - 2\hat{j} + 4\hat{k}$

23) A baby cries on seeing a dog and the cry is detected at a distance of 3.0 m such that the intensity of sound at this distance is 10^{-2} W m^{-2}. Calculate the intensity of the baby's cry at a distance 6.0 m.

24) Write the different cases of zero work done. Given examples of each case.

25) In a physical units, how many units are there in 1 metre?

1 parallactic second (parsec) = 3.08 x 10^{16} m

Given data:

1 AU = 1.496 x 10^{11}m

1 ly = 9.467 x 10^{15}m

1 mm = 10^{-6}m

1 parsec = 3.08 x 10^{16}m

26) What is the specific heat of a gas in an adiabatic process?

27) A light rod of length 2m is suspended horizontally by means of 2 vertical wires of equal lengths tied to its ends. One of the wires is made of steel & is of cross section A_1 = 0.1 cm^2 & other of brass &. is of cross section A_2 = 0.2cm^2, find out the position along the rod at which a weight must be suspended to produce (i) equal stresses in both wires, (ii) equai strains in both wires for steel, y = 20 x 10^{10} Nm^{-2} & for brass y =10 x 10^{10} Nm^{-2}.

5 x 5 = 25

28) Explain the freely falling apple on Earth using the concept of gravitational potential V(r)?

29) Derive the relation between momentum and kinetic energy.

30) An woman walks on a straight road from her home to a market 2.5 km away with a speed of 5 km/h. Finding the market closed, he instantly turns and walks back with a speed of 7.5 km/hr.What is the (a) magnitude of an average velocity, (b) average speed of the man, over the interval of time. (i) 0 to 30 min, (ii) 0 to 50 min and (iii) 0 to 40 min.

31) A body of mass of 3 kg initially at rest makes under the action of an applied horizontally force of 10 N on a table with co-efficient of kinetic friction = 0.3, then what is the workdone by the applied force in 10s:

32) A bus starting from rest moves with a uniform acceleration of 0.2 ms^{-2} for 3 minutes. Find the speed and distance travelled.