



TARGET : NEET (UG) 2024

Course : SARANSH (Youtube Live CRASH COURSE)

PHYSICS

DPP

DAILY PRACTICE PROBLEMS

DPP NO. 1

PHYSICS: RELATIVE MOTION

DPP No. : 1

- A traveller while in a uniformly moving train throws a ball up in the air. The ball will return-
 - In his hand
 - Ahead in the direction of motion of the train
 - Trail behind
 - Deflected sideways
- During a rainstorm, raindrops are observed to be striking the ground at an angle θ with the vertical. A wind is blowing horizontally at the speed of 5.0 m/s. The speed of raindrops is
 - $5 \sin \theta$
 - $\frac{5}{\sin \theta}$
 - $5 \cos \theta$
 - $\frac{5}{\cos \theta}$
- A car with a vertical wind shield moves along in a rain storm at speed of 40 km/hr. The rain drops fall vertically with a terminal speed of 20 m/sec. The angle at which the rain drops strike the wind shield is
 - $\tan^{-1}\left(\frac{5}{9}\right)$
 - $\left(\frac{9}{5}\right)\tan^{-1}$
 - $\left(\frac{3}{2}\right)\tan^{-1}$
 - $\left(\frac{2}{3}\right)\tan^{-1}$
- Two men P & Q are standing at corners A & B of square ABCD of side 8 m. They start moving along the track with constant speed 2 m/s and 10 m/s respectively. Find the time when they will meet for the first time.
 - 2 sec
 - 3 sec
 - 1 sec
 - 6 sec
- P is a point moving with constant speed 10 m/s such that its velocity vector always maintains an angle 60° with line OP as shown in figure (O is a fixed point in space). The initial distance between O and P is 100 m. After what time shall P reach O.
 - 10 sec.
 - 15 sec.
 - 20 sec.
 - $20\sqrt{3}$ sec
- A man who can swim at the rate of 2 km/hr (in still river) crosses a river to a point exactly opposite on the other bank by swimming in a direction of 120° to the flow of the water in the river. The velocity of the water current in km/hr is
 - 1
 - 2
 - 1/2.
 - 3/2

7. Two trains, each 50 m long are travelling in opposite direction with velocity 10 m/s and 15 m/s. The time of crossing is
(1) 2s (2) 4s (3) $2\sqrt{3}$ s (4) $4\sqrt{3}$ s
8. A police jeep is chasing with, velocity of 45 km/h a thief in another jeep moving with velocity 153 km/h. Police fires a bullet with muzzle velocity of 180 m/s. The velocity it will strike the car of the thief is
(1) 150 m/s (2) 27 m/s (3) 450 m/s (4) 250 m/s
9. A train of 150 meter length is going towards north direction at a speed of 10m/sec. A parrot flies at the speed of 5 m/sec towards south direction parallel to the railway track. The time taken by the parrot to cross the train is
(1) 12 sec (2) 8 sec (3) 15 sec (4) 10 sec
10. To a person, going eastward in a car with a velocity of 25 km/hr, a train appears to move towards north with a velocity of $25\sqrt{3}$ km/hr. The actual velocity of the train will be
(1) 25 km/hr (2) 50 km/hr (3) 5 km/hr (4) $5\sqrt{3}$ km/hr

