NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 11 (physics) DPP (Academy)

1. A body starting from rest is moving with a uniform acceleration of 8 m/s^2 . Then the distance travelled by it in 5^{th} second will be
2. A motor cycle moving with speed of 15m/s is subject to an acceleration of 0.2 m/s^2 in the direction of motion. Calculate the speed of motorcycle after 10 second,
3. A dog walking to the right with a velocity of 1.5 m/s sees a cat and speeds up with a constant rightward acceleration of magnitude 12 m/s^2 . What is the velocity of the dog after speeding up for 3.0 m?
4. A particle moving in straight line experience constant acceleration for 20 second after starting from rest. If it travel a distance $S1$ in the first 10 seconds and distance $S2$ in the next 10 seconds then find the relation between $S1$ and $S2$:
5. A car travels a distance 100m with a constant acceleration and average velocity of 20 m/s. The final velocity acquired by the car is 25 m/s. Find the initial velocity
6. A body starting from rest is travelling on a straight road with constant non-zero acceleration. If the speeds after covering distances $S1$ and $S2$ (after $S1$) are $V1$ and $V2$ respectively. If $V2$ $V1$ = 2, then $S2$ $S1 = N$. Find N?
7. A bike moving along a straight road covers 35 m in the 4th second and 40 m in the 5th second. What is its initial velocity: (if the acceleration is assumed to be uniform)?
8. . A truck moving on a straight road with constant acceleration covers the distance between two points 180 m apart in 6 seconds. Its speed as it passes the second points 45 m/s. Find its speed when it was at the first point:
9. . A car accelerates uniformly from 18 km/h to 36 km/h in 5 seconds. Calculate the acceleration of truck: (a) 1 m/s 2 (b) 1 km/h 2 (c) 3 m/s 2 (d) 2.5 m/s 2
10. A body projected horizontally moves with same horizontal velocity throughout the motion although it is under the effect of force of gravity. Why?
11. A bomb thrown as projectile explodes in the mid air what is the path traced by the centre of mass of the fragments if air friction is neglected?
12. What is angle of projection for a projectile thrown parallel to horizontal?
13. Velocity of projectile is 10m s^{-1}. At what angle to the horizontal should it be projected so that it covers maximum horizontal distance?
14. A stone is dropped form the window of a stationary bus takes 5 seconds to reach the ground. In what time the stone will reach the ground when the bus is moving with
    a) Constant velocity at 80 kmh^{-1} (b) Constant acceleration of 2 kmh^2?
15. Is the maximum height attained by projectile largest when its horizontal range is maximum?
16. Two bodies are projected at angles θ and $(90° - \theta)$ to the horizontal with the same speed . Find the ratio of their time of flight
17. What will be the angle of projection for a projectile whose range(R) is n times the maximum height(H)?
18. What happens to the horizontal range of a projectile when its initial velocity is doubled keeping the angle of projection same?
19. A man can throw a stone to the maximum height h What will be the greatest distance upto which he can throw the same stone?
20. The direction of oblique projectile becomes horizontal at the maximum height . why?

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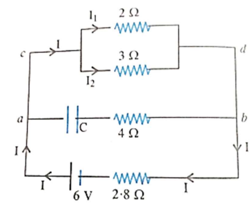
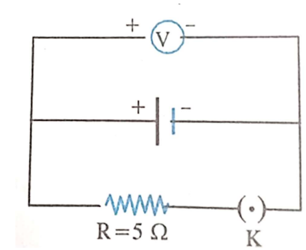
CLASS 12 (physics) DPP (Academy)

1. The current flowing through wire depends on time as, $I = 3t^2 + 2t + 5$. The charge flowing through the cross - section of the wire in time $t = 0\ s$ to $t = 2\ s$ is:
2. The charge flowing through a conductor varies with time as $q = 8t - 3t^2 + 5t^3$. Find time after which the current reaches to minimum value of current:
3. The charge flowing through a conductor beginning with time t=0 is given by the formula $q = 2t^2 + 3t + 1$(coulomb). Find the current at the end of the 5th seconds:
4. In a conductor, 4 coulombs of charge flows for 2 seconds. The value of electric current will be
5. A current of 4.8 A is flowing in a conductor. The number of electrons passing per second through the conductor will be:
6. When current i is flowing through a conductor, the drift velocity is v. If the value of current through the conductor and its area of cross-section is doubled, then new drift velocity will be
7. Every atom makes one free electron in copper. If 1.1 ampere current is flowing in the wire of copper having 1 mm diameter, then the drift velocity (approx.) will be (Density of copper = $9 \times 10^3\ kg/m^3$ and atomic weight = 63
8. An electric current of 16A exists in a metal wire of cross section $10^{-6}\ m^2$ and length 1m. Assuming one free electron per atom. The drift speed of the free electrons in the wire will be: (Density of metal = $5 \times 10^4\ kg/m^3$ and atomic weight = 60
9. An electric cell of emf E is connected across a copper wire of diameter d and length l. The drift velocity of electrons in the wire is Vd. If the length of the wire is changed to $2l$, the new drift velocity of electrons in the copper wire will be:
10. Drift velocity Vd. varies with the intensity of electric field as per the relation:
11. A uniform wire of resistance 12Ω is cut into three pieces in the ratio 1: and the three pieces are connected to from a triangle . A cell of e.m.f 8V internal resistance 1 Ω is connected across the highest of three resistors. Calculate the current through each part of the circuit.
12. Calculate the steady current in the 2 Ω resistor shown in fig .The intern resistance of the battery is negligible and the capacitance Cis $0.2\mu F$.



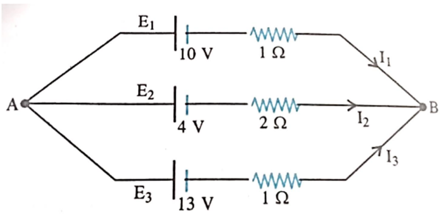
13. Two identical cells, whether joined together in series or in parallel give same current when connected to external resistance of 1 Ω.Find the inte resistance of each cell.
14. Two identical cells of e.m.f 1.5v each joined in parallel provide supply external circuit. Consisting of two resistances of 17 Ωeach joined in par A very high resistance voltmeter reads the terminal voltage of the cells 1.4V. Calculate the internal resistance of each cell.
15. The reading on a high resistance voltmeter when a call connected across 2.2V. When the terminals of the cell are also connected to a resistance c 5 Ωthe voltmeter reading drops to 1.8V find the internal resistance of th cell.



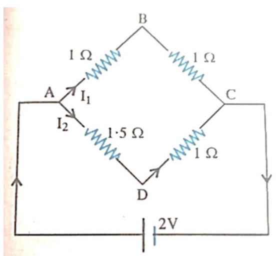
16. The e.m.f. of a cell is 1.09V and its internal resistance is 2 Ω. If the terminals of cell are joined by a wire of resistance 18 Ω, find the poter

difference recorded by a high resistance voltmeter connected to the terminals of a cell

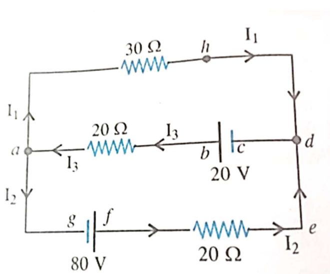
17. Find the current flowing through each cell in the circuit as shown in fig. Also calculate the potential difference across the terminals of each cell.



18. Calculate the potential difference between the junctions B and D in the Wheatstone bridge,



19. Using Kirchhoff's law determine the value of current I_1 flowing in the circuit as shown



20. In the network shown in fig . find (i) the currents I1,I2,I3

(ii) the potential difference between points B and E.