41. A stone is thrown with an initial speed of 4.9 m/s from a bridge in vertically upward direction. It falls down in water after 2 sec. The height of the bridge is
(1)4.9 m (2) 9.8 m (3)19.8 m (4) 24.7 m

42. A body projected vertically upwards with a velocity u returns to the starting point in 4 seconds. If $g = 10\ m/sec^2$, the value of u is
(1)5 m/sec (2) 10 m/sec (3)15 m/sec (4) 20 m/sec

43. The acceleration due to gravity on the planet A is 9 times the acceleration due to gravity on planet B. A man jumps to a height of $2m$ on the surface of A. What is the height of jump by the same person on the planet B ?
(1)18m (2) 6m (3) $\frac{2}{3}m$ (4) $\frac{2}{9}m$

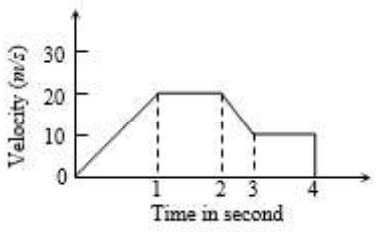
44. If a freely falling body travels in the last second a distance equal to the distance travelled by it in the first three second, the time of the travel is
(1) 6 sec (2) 5 sec (3) 4 sec (4) 3 sec

45. When a ball is thrown up vertically with velocity V_o, it reaches a maximum height of 'h'. If one wishes to triple the maximum height then the ball should be thrown with velocity
(1) $\sqrt{3}V_o$ (2) $3V_o$ (3) $9V_o$ (4) $3/2V_o$

46. A car accelerates from rest at a constant rate α for some time, after which it decelerates at a constant rate β and comes to rest. If the total time elapsed is t, then the maximum velocity acquired by the car is
(1) $\left(\frac{\alpha^2+\beta^2}{\alpha\beta}\right)t$ (2) $\left(\frac{\alpha^2-\beta^2}{\alpha\beta}\right)t$ (3) $\frac{(\alpha+\beta)t}{\alpha\beta}$ (4) $\frac{\alpha\beta t}{\alpha+\beta}$

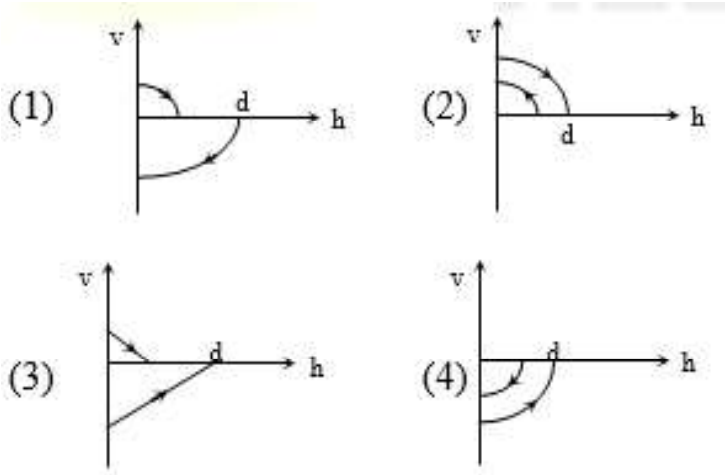
47. If a ball is thrown vertically upwards with speed u, the distance covered during the last t seconds of its ascent is
(1) $\frac{1}{2}gt^2$ (2) $ut-\frac{1}{2}gt^2$ (3) $(u-gt)t$ (4) $ut\ d$

48. The variation of velocity of a particle with time moving along a straight line is illustrated in the following figure. The distance travelled by the particle in four seconds is



(1)60 m (2)55 m (3)25 m (4)30 m

49. A ball is dropped vertically from a height d above the ground. It hits the ground and bounces up vertically to a height $d/2$. Neglecting subsequent motion and air resistance, its velocity v varies with the height h above the ground is



50. A ball is dropped from top of a tower of 100m height. Simultaneously another ball was thrown upward from bottom of the tower with a speed of 50 m/s ($g = 10 m/s^2$). They will cross each other after

(1) 1s (2) 2s (3) 3s (4) 4s