INDIAN SCHOOL AL WADI AL KABIR

UNIT TEST -1[2024-25]

MARKING SCHEME

SECTION A [1x 8 = 8]

[1] [d] A body having constant velocity and variable acceleration
[2] [d] both [a] & [c]
[3] [c] initial velocity is non -zero, final velocity is zero, acceleration is non zero

[4] [c.] 12.25 m/s

[5] [b] $\theta = 45$
[6] [b] $\cos\theta = -\frac{1}{2}$
[7] [a] If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
[8][a] If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

SECTION B [2x2 = 4 Marks]

[9] any one difference [1]

When the body is in uniform motion, distance travelled = displacement [1]

.

[10]
Steps [1+1]

OR

The angles of projection, for which horizontal range is same, are θ and $90° - \theta$.

Time of flight for angle of projection θ is,

$$T_1 = \frac{2u\sin\theta}{g}$$

Time of flight corresponding to angle of projection $(90°-\theta)$ is,

$$T_2 = \frac{2u\sin(90° - \theta)}{g} = \frac{2u\cos\theta}{g}$$

Now, product of their time flight is,

$$T_1T_2 = \frac{2u\sin\theta}{g} \times \frac{2u\cos\theta}{g}$$

$$= \frac{2u^2 2\sin\theta\cos\theta}{gg}$$

$$= \frac{2u^2\sin 2\theta}{gg} = \frac{2R}{g}$$

Steps [1+1/2]

Final answer [1/2]

SECTION C [3 x 3 = 9 marks]

[11]

Fig –[1/2]

Slope , Steps –[1]

Area ,steps [1]

Final answer1/2]

[12] statement –[1]
Fig –[1/2]

Steps –[1/2]

Steps –[1/2]

Final answer [1/2]

[13][a]$v^2 = u^2$- 2gs ½]

0 = 400 - 2 x10 s or s = 20 m [1/2]
[b] v = u - gt
0 = 20- 10 t or t = 2s [1/2 +1/2]
[c] s = ut + ½ gt^2
25 +20 = ½ x 10 x $t1^2$[1/2 +1/2]

t1 = 3
T = 2 +3 = 5

OR

[a] s = ut + ½ gt^2
490 = 0 + ½ x9.8 t^2 or t = 10s [1/2+1/2]
[b] s = 15 x 10 = 150m [1/2 +1/2]
[C] $v^2 = u^2$+ 2gs = 2 x9.8 x 490 = 9604 or v = 98 m/s [1/2+1/2]

SECTION D [CASE STUDY] [4 X1 = 4 Marks]

[14] [i][d] by finding the slope of the tangent drawn to the displacement-time graph

[ii] [d]

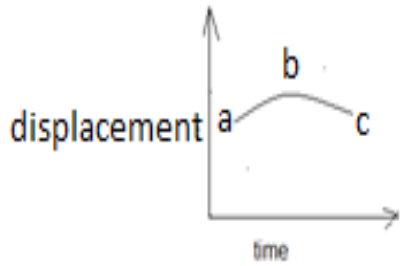
[iii] [b]

OR

[a] 10 m/s & 0 m/s

[iv] [d]

[d]



SECTION E [5X1 = 5 MARKS]

[15] Def [1/2]
Fig [1]
Steps [2]
Final answer [1]
4 times [1/2]

OR

Fig for maximum height [1]
Steps [1]
Final answer [1/2]
Range
Steps –[1+1/2]
Final answer [1/2]
3 times [1/2]