DIRECTORATE OF SCHOOL EDUCATION
TAMILNADU

12NPCB01 (2023-24)	NEET PRACTICE QUESTIONS (TEST-2)	Class : XII Time : 1.15 hrs Total Marks : 240

Answer key

12TH Physics

1. B) $2.24\times10^{-6}\,J$

$W = q \times \Delta r$

$W = 100\ e\ (-4 - 10) = -1400\ eV$

$= -1400\ (-1.6 \times 10^{-19})\ J = 2.24 \times 10^{-16} J$

2. A) 6m

$V = E \times r \rightarrow r \quad r = \frac{V}{E} = \frac{3000}{500} = 6m$

3. A) $\frac{R_1}{R_2}$

$\sigma_1 = \sigma_2 \rightarrow \frac{Q_1}{4\wedge R_1^2} = \frac{Q_2}{4\wedge R_2^2}$

$\therefore \frac{Q_1}{Q_2} = \frac{R_1^2}{R_2^2}$

$V_1 = \frac{1}{4\wedge\varepsilon_o} = \frac{Q_1}{R_1}$

$V_2 = \frac{1}{4\wedge\varepsilon_o} = \frac{Q_2}{R_2}$

$\frac{V_1}{V_2} = \frac{R_1}{R_2}$

4. C) – 80V

$\int dv = -\int E dr = -\int 30x^l dr$

V = -80 V

5. B) 20C

$U_1 = \frac{q^2}{2C}, u_2 = \frac{(q+2)^2}{2C}$

$\left(\frac{u_2 - u_1}{u_1} \times 100\right)\% = 21\%$

$\frac{u_2 - u_1}{u_1} = 0.21$

$\frac{(q+2)^2 - q^2}{q^2} = 0.21$

on solving q = 20C

6. C)

$\frac{1}{2} \in_o \overset{2}{E} Ad$

$U = \frac{1}{2} cr^2, \; C = \frac{\varepsilon_o A}{d}, V = Ed$

$\therefore U = \frac{1}{2} \varepsilon_o E^2 Ad$

7. B) $\frac{1}{16}$

$C_1 = \frac{C}{4}, \; C_2 = 4C$

$\frac{C_1}{C_2} = \frac{C/4}{4C} = \frac{1}{16}$

8. B) 2μF

$C_{eq} = \frac{C_1 C_2}{C_1 + C_2}$

For serins

For parallel Ceq = $C_1 + C_2$

9. B) *48 km / hr*

$t_1 = \frac{x}{2 \times 40} = \frac{x}{80} \; hr$

$t_2 = \frac{x}{2\times 60} = \frac{x}{120}\ hr$

$t = \frac{x}{80} + \frac{8}{120} = \frac{x}{48}\ hr$

$V_{avg} = \frac{x}{x/48} = 4\ km/hr$

10. A) (Velocity)$^{3/2}$

$x = (t + 5)^{-1}$

$V = \frac{dx}{dt} = -(t+5)^{-2}$

$a = \frac{dx}{dt} = -2(t+5)^{-3}$

$V^{3/2} = -(t+5)^{-3}$

$a \propto V^{3/2}$

11. A) 75

Ball. 1

$u = 0,\ t = 18S,\ g = 10ms^{-2}$

$h = ut + \frac{1}{2}at^2 = \frac{1}{2}\times 10\times 18^2$

Ball. 2

$u = v,\ t = 12S,\ g = 10ms^{-2}$

$h = V\times 12 + \frac{1}{2}\times 10\times 12^2$

$\frac{1}{2}\times 10\times 18^2 = V\times 12 + \frac{1}{2}\times 10\times 12^2$

$12V = \frac{1}{2}\times 10\times 18^2 - \frac{1}{2}\times 10\times 12^2$

$= 5\times 18^2 - 5\times 12^2$

$= 75ms^{-1}$

12. C) 5.4S

$h = ut + \frac{1}{2}gt^2, 81 = -12t + \frac{1}{2}\times 10t^2$

$t = 5.43$

13. C) $h_1 = \frac{h_2}{3} = \frac{h_3}{5}$

$h = \frac{1}{2} g t^2$

$h_1 = \frac{1}{2} g t_1^2 = 125$

$h_2 = \frac{1}{2} \times 10 \times 10^2 - \frac{1}{2} \times 10 \times 10^2 = 375$

$h_3 = \frac{1}{2} \times 10 \times 15^2 - \frac{1}{2} \times 10 \times 10^2 = 625$

14. A) o

$s = ut + \frac{1}{2} a t^2$

$t = 2, u = 10, s = 20$

$S = 10 \times 2 - \frac{1}{2} a \times 2^2 = 20 - 2a = 20$

$-2a = 0$

15. C) Both A & B strike the ground with same velocity

$V^2 = u^2 + 2gh$

$v = \sqrt{u^2 + 2gh}$

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11NPCB02 (2023-24)	NEET PRACTICE QUESTIONS (TEST-2)	Class : XII Time : 1.15 hrs Total Marks : 240

Answer key

11TH - Physics

1. B) *48 km / hr*

$t_1 = \frac{x}{2\times 40} = \frac{x}{80}\ hr$

$t_2 = \frac{x}{2\times 60} = \frac{x}{120}\ hr$

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Ball. 2

$u = v,\ t = 12S,\ g = 10ms^{-2}$

$$h = V \times 12 + \frac{1}{2} \times 10 \times 12^2$$

$$\frac{1}{2} \times 10 \times 18^2 = V \times 12 + \frac{1}{2} \times 10 \times 12^2$$

$$12V = \frac{1}{2} \times 10 \times 18^2 - \frac{1}{2} \times 10 \times 12^2$$

$$= 5 \times 18^2 - 5 \times 12^2 = 5\left(\overset{2}{18} - \overset{2}{12}\right)$$

$= 75ms^{-1}$

4. C) *5.4S*

$$h = ut + \frac{1}{2}gt^2, 81 = -12t + \frac{1}{2} \times 10t^2$$

$t = 5.4S$

5. C) $h_1 = \frac{h_2}{3} = \frac{h_3}{5}$

$$h_1 = \frac{1}{2}gt_1^2 = 125$$

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6. A) o

$$s = ut + \frac{1}{2}at^2$$

$$t = 2, u = 10, s = 20$$

$$S = 10 \times 2 - \frac{1}{2} - \frac{1}{2}a \times 2^2 = 20 - 2a = 20$$

$$-2a = 20 - 20 = 0$$

7. C) Both A & B strike the ground with same velocity

$$V^2 = u^2 + 2gh$$

8. B) 19.6 m

$$H_{\max} = \frac{u^2}{2g} = \frac{19.6 \times 19.6}{2 \times 9.8} = 19.6m$$

9. A) $\frac{2V_dV_u}{V_d + V_u}$

Let the distance between x and y is d

Time taken from x to y will be $\frac{d}{V_u}$

and time taken to go from y to x will be $\frac{d}{V_d}$

so Average speed = $\frac{2d}{\frac{d}{V_u} + \frac{d}{V_d}} = \frac{2V_dV_u}{V_d + V_u}$

10. A)

From figure $V_B \sin\theta = V_w$

$$\sin\theta = \frac{V_w}{V_B} = \frac{1}{2}$$

$\theta = 30$

Time taken to cross the river,

$$t = \frac{D}{V_B \cos\theta} = \frac{D}{V_B \cos 30^\circ} = \frac{2D}{V_B\sqrt{3}}$$

11. D) $15 \times 10^4\ ms^{-2}$

$U = 200ms^{-1}, V = 100ms^{-1}, S = 10cm$

$= 0.1\ m$

$$a = \frac{v^2 - u^2}{2s} = \frac{-(200^2 - 100^2)}{2 \times 0.1} = 15 \times 10^4 ms^{-2}$$

12. B) $a = \propto t + \beta$

$$a = \frac{du}{dt} \Rightarrow \propto t + \beta = \frac{du}{dt}$$

Initial velocity $u = 0,\ t = 0$

$$\int_o^u du = \int_o^t (\propto t + \beta)dt = \frac{\propto t^2}{2} + \beta t$$

13. A)

$a = 2(t-1)$

$a = 2t - 2, \quad t = 5s$

$V = \int_{o}^{5} 2t-2)dtV \;\; (V = \int a\,dt)$

$v = 2\left[t^2 \big/ 2 - t \right]^5$

$v = 2\left[\frac{25}{2} - 5 \right] = 2[12.5-5] = 27.5 = 15ms^{-1}$

14. C) $h = \frac{1}{2}gt^2 \Rightarrow t = \sqrt{\frac{2h}{g}}$

$t_a = \sqrt{\frac{2a}{g}}, \; t_b = \sqrt{\frac{2b}{g}}$

$\frac{t_a}{t_b} = \sqrt{\frac{a}{b}} \Rightarrow \sqrt{a} : \sqrt{b}$

15. A) $\frac{9}{25}$

Distance covered is 5th Secord is

$D_5 = 0 + \frac{a}{2}(2\times 5 - 1) = \frac{9a}{2}(x = 0)$

Distance covered in 5 seconds is

$S_5 = 0 + \frac{1}{2}a \times 5^2 = \frac{25a}{2}$

$\frac{D_5}{S_5} = \frac{9}{25}$

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