AVIRAL
JEE | NEET | FOUNDATIONS

WEEKLY TEST MEDICAL PLUS -02 TEST - 05 RAJPUR SOLUTION Date 04-08-2019

[PHYSICS]

1. (c) $\frac{A}{B} = \frac{\text{Force}}{\text{Force}} = [M^0 L^0 T^0]$

$Ct = \text{angle} \Rightarrow C = \frac{\text{Angle}}{\text{Time}} = \frac{1}{T} = T^{-1}$

$Dx = \text{angle} \Rightarrow D = \frac{\text{Angle}}{\text{Distance}} = \frac{1}{L} = L^{-1}$

$\therefore \frac{C}{D} = \frac{T^{-1}}{L^{-1}} = [M^0 L T^{-1}]$

2. (d) Maximum error in measuring mass = 0.001 g, because least count is 0.001 g. Similarly, maximum error in measuring volume is 0.01 cm^3.

$$\frac{\Delta\rho}{\rho} = \frac{\Delta M}{M} + \frac{\Delta V}{V} = \frac{0.001}{20.000} + \frac{0.01}{10.00}$$

$$= (5 \times 10^{-5}) + (1 \times 10^{-3}) = 1.05 \times 10^{-3}$$

$$\Delta\rho = (1.05 \times 10^{-3}) \times \rho$$

$$= 1.05 \times 10^{-3} \times \frac{20.000}{10.00} = 0.002 \text{ g cm}^{-3}$$

3. (d) $\frac{C^2}{g} = \frac{L^2 T^{-2}}{L T^{-2}} = [L]$

4. (d) $y = a \sin \omega t + bt + ct^2 \cos \omega t$

Here $a = y$; $b = y/t$; $c = y/t^2$

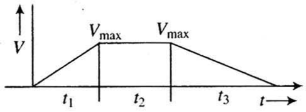
$\therefore a \times b \times c = y \times y/t \times y/t^2 = (y/t)^3$

5. (b) Given $7x = \frac{g}{2}(2n-1)$ and $x = \frac{1}{2}g(1)^2$

Solving these two equations, we get $n = 4$ s.

6. (c) Graphically, the area of v–t curve represents displacement:

$$S = \frac{1}{2} v_{max} t_1 \quad \text{or} \quad t_1 = \frac{2S}{v_{max}}$$



$$2S = v_{max} t_2 \quad \text{or} \quad t_2 = \frac{2S}{v_{max}}$$

$$5S = \frac{1}{2} v_{max} t_3 \quad \text{or } t_3 = \frac{10S}{v_{max}}$$

$$v_{av} = \frac{\text{Total displacement}}{\text{Total time}} = \frac{S + 2S + 5S}{\frac{2S}{v_{max}} + \frac{2S}{v_{max}} + \frac{10S}{v_{max}}}$$

$$\frac{v_{av}}{v_{max}} = \frac{8S}{14S} = \frac{4}{7}$$

Alternative:

$$\frac{v_{av}}{v_{max}} = \frac{\text{Total displacement}}{2\begin{pmatrix}\text{Total displacement} \\ \text{during acceleration} \\ \text{and retardation}\end{pmatrix} + \begin{pmatrix}\text{Displacement} \\ \text{during uniform} \\ \text{velocity}\end{pmatrix}}$$

$$\frac{v_{av}}{v_{max}} = \frac{8S}{2(S + 5S) + 2S} = \frac{8}{14} = \frac{4}{7}$$

7. (a) Let the particle be thrown up with initial velocity u.

Displacement (s) at any time t is $S = ut - \frac{1}{2} g t^2$.

The graph should be parabolic downwards as shown in option (b).

8. (c) Maximum height will be attained at 110 s. Because after 110 s, velocity becomes negative and rocket will start coming down.

Area from 0 to 110 s is

$$\frac{1}{2} \times 110 \times 1000 = 55{,}000 \text{ m} = 55 \text{ km}$$

9. (c) $x = at^2 - bt^3$

Velocity $= \frac{dx}{dt} = 2at - 3bt^2$

and acceleration $= \frac{d^2x}{dt^2} = 2a - 6bt$

Acceleration will be zero if

$$2a - 6bt = 0 \Rightarrow t = \frac{2a}{6b} = \frac{a}{3b}$$

10. (d) Let $u_x = 3\ \text{m s}^{-1}$, $a_x = 0$

$v_y = u_y + a_y t = 0 + 1 \times 4 = 4\ \text{m s}^{-1}$

$v = \sqrt{v_x^2 + v_y^2} = \sqrt{3^2 + 4^2}$

Angle made by the resultant velocity w.r.t. direction of initial velocity, i.e., x-axis, is

$\beta = \tan^{-1}\frac{v_y}{v_x} = \tan^{-1}\frac{4}{3}$

11. (a) $x = t$

$y = 2t - 5t^2$

Equation of trajectory is $y = 2x - 5x^2$

12. **(a)** Time to reach the maximum height,

$t_1 = \frac{u}{g}$

If t_2 be the time taken to hit the ground, then

$-H = ut_2 - \frac{1}{2}gt_2^2$

But $t_2 = nt_1$ (given)

$\Rightarrow -H = u\frac{nu}{g} - \frac{1}{2}g\frac{n^2u^2}{g}$

13. **(a)** Time to reach the maximum height,

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But $t_2 = nt_1$ (given)

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$\Rightarrow 2gH = nu^2(n-2)$

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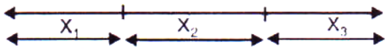


Starting from rest $x_1 = \frac{1}{2} a (10)^2$ ....(1)

$x_1 + x_2 = \frac{1}{2} a(20)^2$ ....(2)

$x_1 + x_2 + x_3 = \frac{1}{2} a(30)^2$ ....(3)

From (2) – (1) $x_2 = \frac{1}{2} a (300)$

From (3) – (2) $x_3 = \frac{1}{2} a (500)$

$\Rightarrow$ $x_1 : x_2 : x_3 :: 1 : 3 : 5$

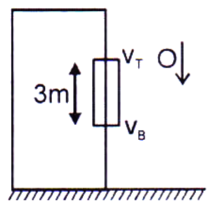
16. $s = \frac{(u+v)}{2} t$

$3 = \frac{(v_T + v_B)}{2} \times 0.5$

$v_T + v_B = 12$ m/s

Also, $v_B = v_T + (9.8)(0.5)$.......... (2)

$v_B - v_T = 4.9$ m/s

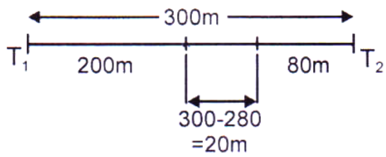


17. Initial distance between trains is 300 m. Displacement of 1st train is calculated by area under V-t. curve of train 1 = $\frac{1}{2} \times 10 \times 40 = 200$ m.

Displacement of train 2 = $\frac{1}{2} \times 8 \times (-20) = -80$ m.

Which means it moves towards left.

$\therefore$ Distance between the two is 20 m.



18. At $t = \frac{T}{4}$ and $t = \frac{3T}{4}$, the stone is at same height,

Hence average velocity in this time interval is zero.

Change in velocity in same time interval is same for a particle moving with constant acceleration.

Let H be maximum height attained by stone, then distance travelled from t = 0 to $t = \frac{T}{4}$ is $\frac{3}{4}$H and from $t = \frac{T}{4}$ to $t = \frac{3T}{4}$ distance travelled is $\frac{H}{2}$.

From $t = \frac{T}{2}$ to t = T sec distance travelled is H and from $t = \frac{T}{2}$ to $t = \frac{3T}{4}$ distance travelled is $\frac{H}{4}$.

19. The retardation is given by $\frac{dv}{dt} = -av^2$

integrating between proper limits $\Rightarrow$ $-\int_u^v \frac{dv}{v^2} = \int_0^t a\,dt$ or $\frac{1}{v} = at + \frac{1}{u}$

$\Rightarrow \frac{dt}{dx} = at + \frac{1}{u}$ $\Rightarrow$ $dx = \frac{u\ dt}{1+aut}$

integrating between proper limits$\Rightarrow$ $\int_0^s dx = \int_0^t \frac{u\,dt}{1+aut}$ $\Rightarrow$ $S = \frac{1}{a}\ell n\,(1 + aut)$

20. Let a be the retardation produced by resistive force, t_a and t_d be the time of ascent and descent respectively. If the particle rises upto a height h

then $h = \frac{1}{2}(g + a)\,t_a^2$ and $h = \frac{1}{2}(g - a)\,t_d^2$

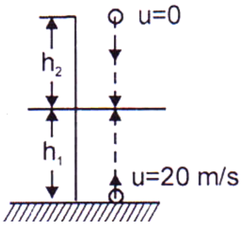
$\therefore \frac{t_a}{t_d} = \sqrt{\frac{g-a}{g+a}} = \sqrt{\frac{10-2}{10+2}} = \sqrt{\frac{2}{3}}$ **Ans.** $\sqrt{\frac{2}{3}}$

21 Height of the building

$H = h_1 + h_2$

$= \frac{1}{2}gt^2 + ut - \frac{1}{2}gt^2$

$=$ ut = 60 m.



22. $\vec{r} = (t^2 - 4t + 6)\,\hat{i} + t^2\,\hat{j}$; $\vec{v} = \frac{d\vec{r}}{dt} = (2t - 4)\,\hat{i} + 2t\,\hat{j}$, $\vec{a} = \frac{d\vec{v}}{dt} = 2\,\hat{i} + 2\,\hat{j}$

if $\vec{a}$ and $\vec{v}$ are perpendicular

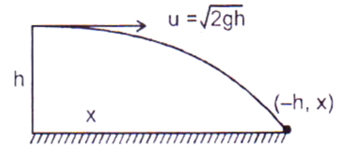
$\vec{a}.\vec{v} = 0$ $(2\,\hat{i} + 2\,\hat{j}).\,((2t - 4)\,\hat{i} + 2t\,\hat{j}) = 0$ $8t - 8 = 0$ $t = 1$ sec.

23. At t = 0 $\frac{dx}{dt} = 0$ for particles 1,2 and 3 and $\left|\frac{d^2x}{dt^2}\right| > 0$ for $t > 0$

and $\frac{dx}{dt} = -3.4$ m/s for particle 4 and $\frac{d^2x}{dt^2}$ is negative for $t > 0$

Therefore for $t > 0$; $\left|\frac{dx}{dt}\right|$ is increasing in all.

24. Using equation of trajectory :



$$-h = x\tan(0°) - \frac{gx^2}{2(2gh)(\cos^2 0°)}$$

$\Rightarrow x = 2h$ **Ans.**

Method II

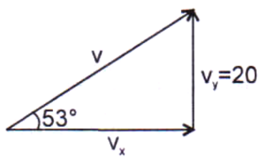
time of flight $T = \sqrt{\frac{2h}{g}}$

horizontal distance covered during time of flight is

$$x = u_x t = \sqrt{\frac{2h}{g}} \times \sqrt{2hg} = 2h$$

25. Use $\alpha = \beta = 45°$ in the formula for Range down the incline plane.

26 Two second before maximum height $v_y = g \times 2 = 20$ m/s



$$\tan 53° = \frac{20}{v_x} \qquad v_x = 15 \text{ m/s}$$

velocity at maximum height $v = v_x = 15$ m/s

27. velocity component $u_x = 400/3\ \hat{i}$, $u_y = 100\ \hat{j}$

Applying equation is y direction

$$-1500 = -100\,t - \frac{1}{2} \times 10\,t^2$$

$$\Rightarrow \frac{t^2}{2} + 10\,t - 150 = 0 \qquad t = \frac{-20 \pm 40}{2}$$

So t = 10 sec i.e. horizontal distance $u_x \times t = \frac{500}{3} \times \frac{4}{5} \times 10 = \frac{4000}{3}$ m.

28. For minimum number of jumps, range must be maximum.

maximum range $= \frac{u^2}{g} = \frac{(\sqrt{10})^2}{10} = 1$ meter.

Total distance to be covered = 10 meter

So minimum number of jumps = 10

29. Let u be the initial speed of the particle

$v^2 = u^2 - 2gh$

$u^2 = v^2 + 2gh$

$$u_x^2 + u_y^2 = v_x^2 + v_y^2 + 2gh(v_x - u_x)$$

$$u_y^2 = v_y^2 + 2gh$$

$$u_y^2 = 2^2 + 2(10)(0.4) = 12$$

$$u_y = \sqrt{12}\ \text{m/s}$$

$u_x = v_x = 6$ m/s

$$\tan\theta = \frac{u_y}{u_x} = \frac{\sqrt{12}}{6} = \frac{1}{\sqrt{3}}$$

so, $\theta = 30°$

30. Let h be height of building. Hence

$$-h = ut_1 - \frac{1}{2}gt_1^2 \quad ....(i)$$

$$-h = ut_2 - \frac{1}{2}gt_2^2 \quad ......(ii)$$

$$-h = -\frac{1}{2}gt_3^2 \quad .....(ii)$$

From (1) and (3) :

$$\frac{1}{2}g\frac{t_3^2}{t_2} = -u + \frac{g}{2}t_1$$

From (1) and (3) :

$$\frac{1}{2}g\frac{t_3^2}{t_2} = u + \frac{g}{2}t_2$$

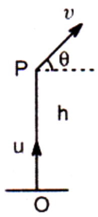
Adding above two questions : $t_3 = \sqrt{t_1 t_2}$

31. Relative acceleration between the particles is zero. The distance between them at time t is

$$s = \sqrt{\{h-(v - v\sin\theta)t\}^2 + (v\cos\theta t)^2}$$

or $s^2 = \{h - (v - v\sin\theta)t\}^2 + (v\cos\theta t)^2$

s is minimum when



$$\frac{ds^2}{dt} = 0$$

$2\{h - (v - v\sin\theta)t\}(v\sin\theta - v) + 2v^2\cos^2\theta t = 0$

$$t = \frac{h}{2v}$$

32. Let v the river velocity and u the velocity of the swimmer in still water. Then

$$t_1 = 2\left(\frac{\omega}{\sqrt{u^2 - v^2}}\right)$$

$$t_2 = \frac{\omega}{v+u} + \frac{\omega}{u-v} = \frac{2u\omega}{u^2 - v^2}$$

$$t_3 = \frac{2\omega}{u}$$

And It is obvious from the above that

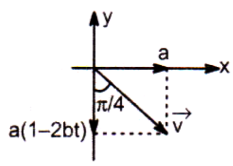
$$t_1^2 = t_2 t_3$$

33. Since both have same initial vertical velocity (zeron in this case) and displacement along vertical axis is also same for both when they strike the ground therefore time of flight is same for both.

34. $$\vec{v} = \left(\frac{dx}{dt}\right)\hat{i} + \left(\frac{dy}{dt}\right)\hat{j} = a\hat{i} + a(1-2bt)\hat{j}$$

$$\vec{A} = 0\hat{i} + (-2ab)\hat{j}$$

Hence acceleration $\vec{A}$ is along negative y-axis. Hence when $\vec{A}$ and $\vec{v}$ enclose $\pi/4$ between them the velocity vector makes nalge $\pi/4$ with negative y-axis. Hence



$$\tan\frac{\pi}{4} = \frac{a}{|a(1-2bt)|} \Rightarrow |1-2bt| = 1$$

$$\Rightarrow 1 - 2bt = \pm 1 \Rightarrow t = \frac{1}{b} \text{ or } 0$$

But when t = 0 the y-component of velocity is along positive y-axis, hence t = 0 rejected

35.

$$\vec{v} = v_x\hat{\mathbf{i}} + v_y\hat{\mathbf{j}} \Rightarrow |\vec{v}| = \sqrt{v_x^2 + v_y^2}$$

$$\Rightarrow \quad \frac{d|\vec{v}|}{dt} = \frac{\left(2v_x\frac{dv_x}{dt} + 2v_y\frac{dv_y}{dt}\right)}{2\sqrt{v_x^2 + v_y^2}}$$

$$\Rightarrow \quad \frac{d|\vec{v}|}{dt} = \frac{v_x a_x + v_y a_y}{\sqrt{v_x^2 + v_y^2}}$$

$$= \frac{3\times 2 + 4\times 1}{\sqrt{3^2 + 4^2}} = 2\,\text{m/s}^2$$

36. $\tan\theta = \frac{u\sin\theta}{u\cos\theta} = \frac{2}{1}$

The desired equation is,

$$y = x\sin\theta - \frac{gx^2}{2u^2\cos^2\theta}$$

$$= x\times 2 - \frac{10x^2}{2(\sqrt{2^2+1^2})^2\left(\frac{1}{\sqrt{5}}\right)^2}$$

or $y = 2x - 5x^2$.

37. R is same for both θ and (90º – θ),

If angle w.r.t. vertical is 40º, then w.r.t. horizontal direction in will be 90º – 40º = 50º.

38. $t = \frac{2u\sin\theta}{g} = \frac{2\times 20\times\sin 30^\circ}{10} = 2s$

Now, we shall calculate the total time taken by the ball to hit the ground.

Using, $s = ut + \frac{1}{2}gt^2$, we get;

$$40 = -10t' + \frac{1}{2}\times 10(t')^2$$

$[\because u = -20\sin 30^\circ = -10\,m/s]$

$\therefore$ $5(t')^2 - 10' - 40 = 0$

Solving, we have, t′ = 4 s

$\therefore$ $\frac{t'}{t} = \frac{4s}{2s} = \frac{2}{1}$

39. $H_{max.} = \frac{u^2\sin^2\theta}{2g}$

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

$$\frac{H_{max.}}{T^2} = \frac{u^2\sin\theta}{2g}\times\frac{g^2}{4u^2\sin^2\theta}$$

$$= \frac{g}{8} = \frac{10}{8} = \frac{5}{4}$$

40. $h = \frac{u^2 \sin^2 \theta}{2g}$, hence $\frac{\Delta h}{h} = 2.\frac{\Delta t}{u}$

Since, $\frac{\Delta u}{u} = 2\%$, hence $\frac{\Delta T}{T} = \frac{\Delta h}{h} = 4\%$

41. kx and ωt have dimensions of angle (i.e., $[M^0L^0T^0]$).
Hence, kx and ωt both are dimensionless.

42. Plane angle is dimensionless

$$[WA] = [v]$$
$$[W]L = LT^{-1}$$
$$[W] = T^{-1}$$
$$\left[\sqrt{\frac{k}{m}}t\right] = 1$$
$$k = \frac{m}{t^2} = MT^{-2}$$
$$\left(\sqrt{\frac{k}{m}}\right)\{t\} = 1 \Rightarrow \sqrt{\frac{k}{m}} = T^{-1}$$

43. The quantity $\frac{t}{a} - 1$ is dimensionless i.e.; $[a] = [t]$

$\therefore \quad [\sqrt{2at - t^2}] = [t]$

or $\quad \left[\frac{dt}{\sqrt{2at - t^2}}\right] = \left[\frac{t}{t}\right] = [M^0L^0T^0]$

i.e. a^x should also be dimensionless or $x = 0$.

44. $\frac{1}{2}CV^2$ = Energy stored is capacitor and $\frac{1}{2}LI^2$ = Energy stored in inductor.

$$\therefore \quad \frac{\frac{1}{2}CV^2}{\frac{1}{2}LI^2} = \frac{\text{Energy}}{\text{Energy}} = [M^0L^0T^0]$$

45. In Bohr's model, $\frac{1}{\lambda} = \frac{me^4}{\varepsilon_0^2 h^3 c}\left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right)$

Where, λ = wavelength, n_1 and n_2 are principal quantum numbers.

$$\therefore \quad \left[\frac{me^4}{\varepsilon_0^2 h^3 c}\right] = [L^{-1}] = [M^0L^{-1}T^0]$$

[CHEMISTRY]

46. **(a)** $Na_2CO_3.xH_2O$. Its weight = 106 + 18 x.

Weight of anhydrous Na_2CO_3 = 106

$$\% \text{ loss in weight} = \frac{18x \times 100}{106 + 18x} = 63$$

$\therefore \quad x = 10.27 \approx 10$

47. **(c)** In law of reciprocal proportions, the two elements combining with the third element, must combine with each other in the same ratio or multiple of that Ratio of S and O when combine with C is 2 : 1. Ratio of S and O is SO, is 1 : 1

48. **(b)** Equivalent weigth of the elements is weight of element which reacts with 8 gm of oxygen to form oxide.

$\therefore$ Eq. weight of the element

$$= \frac{32.33}{67.67} \times 8 = 3.82$$

49. **(c)** Mol in each case

$$7 \text{ g } N_2 = \frac{7}{28} = 0.25; \ 2 \text{ g } H_2 = \frac{2}{2} = 1.0;$$

$$16 \text{ g } NO_2 = \frac{16}{46} = 0.34; \ 16 \text{ g } O_2 = \frac{16}{32} = 0.50$$

Thus hydrogen has maximum moles, hence maximum molecules.

50. **(a)** Suppose the nucleus of hydrogen atom have charge of one proton i.e. The electron revolves in a radius of r around it. Therefore the centripital force is supplied by electrostatic force of attraction i.e.

$$\frac{mv^2}{r} = \frac{ze^2}{r^2}$$

or $$mv^2 = \frac{ze^2}{r}$$

or $$\frac{1}{2}mv^2 = \frac{1}{2}\frac{ze^2}{r} = K.E$$

now total energy (E_n) = K.E + P.E

in first excited state

$$E = \frac{1}{2}mv^2 + \left[-\frac{ze^2}{r}\right]$$

$$= +\frac{1}{2}\frac{ze^2}{r} - \frac{ze^2}{r}$$

$$-3.4 \text{ eV} = -\frac{1}{2}\frac{ze^2}{r}$$

$$\therefore K.E = \frac{1}{2}\frac{ze^2}{r} = +3.4 \text{ eV}$$

51. **(a)** $\lambda = \frac{h}{mv} = \frac{h}{\sqrt{2mE}}$

$= \frac{6.6 \times 10^{-34}}{\sqrt{2 \times 1 \times 0.5}} = 6.6 \times 10^{-34}$

52. **(d)** $\frac{1}{\lambda} = R_H Z^2 \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$

To calculate shortest wavelength take $n_2 = \infty$ and longest wavelength take nearest value of n_2.

For H-atom,

$\frac{1}{\lambda_{shortest}}$ $n_2 = \infty, Z = 1, n_1 = 1$

$\therefore \quad \frac{1}{x} = R_H$ (Lyman series)

For $\frac{1}{\lambda_{longest}}$ of Li^{2+}, $Z = 3$, $n_1 = 2$, $n_2 = 3$

(Balmer series)

$\frac{1}{\lambda_{longest}} = \frac{1}{x} \times 3^2 \left(\frac{1}{2^2} - \frac{1}{3^2} \right) = \frac{5}{4x}$

$\therefore \quad \lambda_{longest} = \frac{4x}{5}$

53. [c] $2\ KClO_3 \rightarrow 2\ KCl + 3O_2$

2 mol 3 mol

$= 2 \times 122.5$g $= 3 \times 22.4$ L at STP

$\because$ 2×122.5 5g $kclO_3$ liberates 3×22.4 L of 02 gas at STP

$\therefore$ 4.90 g $kclo_3$ liberates $= \frac{3 \times 12.4}{2 \times 122.5} \times 4.90 = 1.3\ 44$ L

54. [c] suppose the formula of hydrocarbon is C_xH_y.

$$C_xH_y + \left(x \frac{y}{4} \right) o_2 \rightarrow xco_2 + \frac{y}{2} H_2O$$

1 vol x + y/4 vol. x vol 0 vol

20 ml 20 $(x + \frac{y}{4})$ ml 20 ml 0

From question vol . of co_2 formed = 60 ml

$20x = 60 \therefore x = 3$

vol of o_2 used = 100 ml

$20 \left(x + \frac{y}{4} \right) = 100 \therefore y = 8$

Hence hydrocarbon is C_3H_8

55. 10% (w/w) solution means 100 g = $\frac{100}{1.1}$ ml

solution contains 10 g solute, NaOH

$$\text{Molarity} = \frac{w \times 1000}{m^1 \times v} = \frac{10 \times 1000}{40 \times \left(\frac{100}{1.1}\right)} = 2.75M$$

56. [c] neq . of $KMNO_4$ = neq of $H_2C_2O_4$

$$\frac{v \times 0.1 \times 5}{1000} = \frac{40 \times 0.2 \times 2}{1000}$$

v = 32 ml

57. $$\frac{(r_2)Li^+}{(r_3)He^+} = \frac{0.529 \times 2^2 / 3}{0.529 \times 3^2 / 2} = \frac{8}{27}$$

58. [a] It is case of back titration

$$\text{carbonate} \xrightarrow[\text{excess}]{\text{HCl}} \text{left acid}$$

left acid ↓ reacted with NaOH

$\therefore$ equivalent = NaOH used for neutralisation of left acid

= 5 × 1

$\therefore$ left acid 5 ml so consumed acid 25-5 = 20 ml

$\therefore$ Equivalent of carbonate = Equivalent of acid used

$\frac{1}{E_q.wt} \times 1000 = 20$ $\therefore E_q$.wt (metal carbonate) = 50

59. [c] - Fact

60. [c] $m\,\Delta v.\,\Delta V \geq \frac{h}{4\pi}$

$$\therefore \Delta V = \frac{1}{2m}\sqrt{\frac{h}{4\pi}}$$

61.[a] before dilution = after dilution

$n_1v_1 = n_2v_2$

$y_1\,x_1 = y_2.v$

v = vol. after dilution v = $\frac{111.6}{2}$

change in volume $\Delta V = V - x_1$

$= y_1x_1/y_2 - x_1$

$$= x_1\left(\frac{y_1}{y_2} - 1\right)$$

62.[d] $Fe_2o_3 + 3\ co \rightarrow 2\ Fe + 3\ co_2$

160 gm 3 mol

$\therefore$ by 4 gm 0.075 mol

$c + \frac{1}{2}\ O_2 \rightarrow co$

1 mol of co fromed by 11200 ml of o_2

$\therefore$ 0,075 = 11200 × 0.075

= 840 ml

63.[b] Lines belongs to lyman series has in ultra violet reagion

$n_1 = 1\ n_2 = 6$

$\therefore$ no. of lines = 6 – 1 = 5

64.[b] $CaCl_2 + NaCl \rightarrow$ $CaCO_3 \xrightarrow{\Delta} CaO$

xg $(10 - x)_g$

$\therefore$ g m eq. of cao = gm eq. of $CaCl_2$

$$\frac{1.62}{56} = \frac{x}{111}$$

$\therefore$ mass of $CaCl_2$ = 3.21 g

or % by mass = 32.1 %