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DIVISION: PRE MEDICAL
ACADEMIC SESSION: 2023-24

PERIODIC ASSESSMENT TEST (PAT)

STUDENT SUPPORT BOOKLET (SSB)

Answer Key (AK) | Standard Hints (SH) | Text Solutions (TS) | Weightage Sheet (WS)

CLASS	XII & XIII	COURSE NAME	SAMBHAV, SANKALP PLUS, SAMPOORN	COURSE CODE	MF, MPS, MD
PHASE CODE(S)	MF, MPS, 01MD, 02MD,03MD,04MD	TOTAL PAGES	1	BATCH CODE(S)	MF, MPS, 01MD, 02MD,03MD,04MD

Target Examination & Year:

NEET 2024

TEST PATTERN	TEST TYPE	TEST CODE & SEQUENCE
NEET	REVISION PART TEST (RPT)	NRPT 1

DATE & DAY:
20th February 2024 | Tuesday

Duration & Time:
200 Minutes | 11:00 PM to 2:20 PM

Contents:

- Weightage Sheet (WS) ☐
- Answer Key (AK) ☑
- Standard Hints (SH) ☐
- Text Solutions (TS) ☑
- Resonance Student's Critical Analysis of Learning for Excellence (ResoSCALE) ☐
- Student Self Assessment Sheet (SAS) ☐
- Video Solutions (VS) ☐

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ANSWER KEY (AK)

PAPER											
PART-A : PHYSICS	Q.No.	1	2	3	4	5	6	7	8	9	10
	Ans.	3	3	1	3	3	1	2	2	2	2
	Q.No.	11	12	13	14	15	16	17	18	19	20
	Ans.	1	1	4	3	2	2	2	2	3	1
	Q.No.	21	22	23	24	25	26	27	28	29	30
	Ans.	1	2	3	3	4	4	3	4	3	1
	Q.No.	31	32	33	34	35	36	37	38	39	40
	Ans.	4	3	4	3	2	1	2	2	2	3
	Q.No.	41	42	43	44	45	46	47	48	49	50
	Ans.	1	2	3	2	1	4	2	1	1	3
PART-B : CHEMISTRY	Q.No.	51	52	53	54	55	56	57	58	59	60
	Ans.	2	2	2	3	2	1	2	2	1	1
	Q.No.	61	62	63	64	65	66	67	68	69	70
	Ans.	3	1	2	3	2	2	2	2	4	1
	Q.No.	71	72	73	74	75	76	77	78	79	80
	Ans.	1	3	2	1	3	1	2	2	3	2
	Q.No.	81	82	83	84	85	86	87	88	89	90
	Ans.	1	3	3	1	4	2	2	3	4	3
	Q.No.	91	92	93	94	95	96	97	98	99	100
	Ans.	1	2	1	1	1	2	1	2	4	3
PART-C : BIOLOGY	Q.No.	101	102	103	104	105	106	107	108	109	110
	Ans.	1	3	3	1	2	3	3	1	1	3
	Q.No.	111	112	113	114	115	116	117	118	119	120
	Ans.	3	2	3	3	3	1	3	4	3	3
	Q.No.	121	122	123	124	125	126	127	128	129	130
	Ans.	2	4	1	3	1	2	4	4	1	3
	Q.No.	131	132	133	134	135	136	137	138	139	140
	Ans.	2	1	3	2	2	1	4	2	1	4
	Q.No.	141	142	143	144	145	146	147	148	149	150
	Ans.	2	3	2	1	2	2	3	3	2	2
	Q.No.	151	152	153	154	155	156	157	158	159	160
	Ans.	4	1	1	1	3	4	3	3	1	3
	Q.No.	161	162	163	164	165	166	167	168	169	170
	Ans.	2	2	1	1	4	1	2	4	3	2
	Q.No.	171	172	173	174	175	176	177	178	179	180
	Ans.	3	2	1	3	3	4	4	3	1	2
	Q.No.	181	182	183	184	185	186	187	188	189	190
	Ans.	4	1	2	1	3	2	4	1	1	4
	Q.No.	191	192	193	194	195	196	197	198	199	200
	Ans.	1	2	2	3	4	1	1	1	2	3

STUDENT'S SPACE

TEXT SOLUTIONS (TS)

PAPER

PART-A: PHYSICS

1. In first instant you will apply $v = \tan\theta$ and say, $\upsilon = \tan 30^o = \frac{1}{\sqrt{3}}$ m/s.

But it is wrong because formula $v = \tan\theta$ is valid when angle is measured with time axis.

Here angle is taken from displacement axis. So angle from time axis $= 90^o - 30^o = 60^o$

Now $v = \tan 60^o = \sqrt{3}$

2. From given $a - t$ graph it is clear that acceleration is increasing at constant rate

$\therefore \frac{da}{dt} = k$ (constant)

$\Rightarrow a = kt$ (by integration)

$\Rightarrow \frac{dv}{dt} = kt \Rightarrow dv = ktdt$

$\Rightarrow \int dv = k\int tdt \Rightarrow v = \frac{kt^2}{2}$

i.e. v is dependent on time parabolically and parabola is symmetric about v-axis.

and suddenly acceleration becomes zero. i.e. velocity becomes constant.

Hence (3) is most probable graph.

3. $V_A = V_B = V_C$

4. Net acceleration of a body when thrown upward

= acceleration of body – acceleration due to gravity

= a – g

5. $v_{av} = \frac{\text{Total distance}}{\text{Time taken}} = \frac{x}{\frac{x/3}{v} + \frac{x/3}{2v} + \frac{x/3}{3v}}$

$= \frac{18}{11}v$

6. An aeroplane flies 400 m north and 300 m south so the net displacement is 100 m towards north.

Then it flies 1200 m upward so

$r = \sqrt{(100)^2 + (1200)^2} = 1204\,m \simeq 1200\,m$

The option should be 1204 m, because this value mislead one into thinking that net displacement is in upward direction only.

7. Boat covers distance of 16km in a still water in 2 hours. i.e. $v_B = \frac{16}{2} = 8\,km/hr$

Now velocity of water $\Rightarrow v_w = 4\,km/hr$.

Time taken for going upstream

$t_1 = \frac{8}{v_B - v_w} = \frac{8}{8-4} = 2hr$

(As water current oppose the motion of boat)

Time taken for going down stream

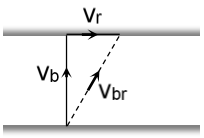
$t_2 = \frac{8}{v_B + v_w} = \frac{8}{8+4} = \frac{8}{12}hr$

(As water current helps the motion of boat)

$\therefore$ Total time $= t_1 + t_2 = \left(2 + \frac{8}{12}\right)hr$

or 2hr 40min

8.



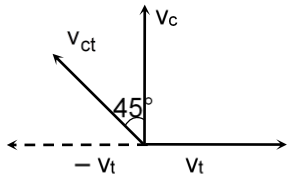
$\vec{v}_{br} = \vec{v}_b + \vec{v}_r$

$\Rightarrow v_{br} = \sqrt{v_b^2 + v_r^2}$

$\Rightarrow 10 = \sqrt{8^2 + v_r^2}$

$\Rightarrow v_r = 6\,km/hr$.

9.



$\vec{v}_{ct} = \vec{v}_c - \vec{v}_t$

$\vec{v}_{ct} = \vec{v}_c + (-\vec{v}_t)$

Velocity of car w.r.t. train (v_{ct}) is towards West – North

10. The relative velocity of boat w.r.t. water

$= v_{boat} - v_{water}$ $= (3\hat{i} + 4\hat{j}) - (-3\hat{i} - 4\hat{j})$

$= 6\hat{i} + 8\hat{j}$

11. The relative velocity

$v_{rel.} = 60 - (-30) = 90\,km/hr.$

Distance between the train $s_{rel.} = 90\,km$,

$\therefore$ Time when they collide $= \frac{s_{rel.}}{v_{rel.}} = \frac{90}{90} = 1hr.$

12. As the trains are moving in the same direction. So the initial relative speed $(v_1 - v_2)$ and by applying retardation final relative speed becomes zero.
From $v = u - at$
$\Rightarrow 0 = (v_1 - v_2) - at \Rightarrow t = \frac{v_1 - v_2}{a}$

13. $y = x\tan\theta - \frac{gx^2}{2u^2\cos^2\theta}$

14. Because horizontal velocity is same for coin and the observer. So relative horizontal displacement will be zero.

15.
$$S = u \times \sqrt{\frac{2h}{g}} = 100 \times \sqrt{\frac{2 \times 490}{9.8}} = 1000\,m = 1km$$

16. Because the vertical components of velocities of both the bullets are same and equal to zero and $t = \sqrt{\frac{2h}{g}}$.

17. $T = \frac{2u\sin\theta}{g} = \frac{2 \times 9.8 \times \sin 30}{9.8} = 1s$

18. Range $= \frac{u^2 \sin 2\theta}{g}$. It is clear that range is proportional to the direction (angle) and the initial speed.

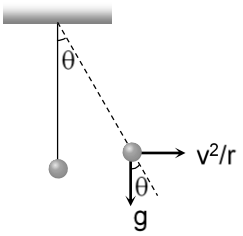
19. The resultant of two vectors of unequal magnitude given by $R = \sqrt{A^2 + B^2 + 2AB\cos\theta}$, cannot be zero for any value of θ.

20. Sum of the vectors
$\vec{R} = 5\hat{i} + 8\hat{j} + 2\hat{i} + 7\hat{j} = 7\hat{i} + 15\hat{j}$
magnitude of $\vec{R} = |\vec{R}| = \sqrt{49 + 225} = \sqrt{274}$

21. $\vec{A} \times \vec{B}$ is a vector perpendicular to plane $\vec{A} + \vec{B}$ and hence perpendicular to $\vec{A} + \vec{B}$.

22. In uniform circular motion, the magnitude of velocity and acceleration remains same, but due to change in direction of motion, the direction of velocity and acceleration changes. Also the centripetal acceleration is given by $a = \omega^2 r$.

23.



$$\tan\theta = \frac{v^2/r}{g} = \frac{v^2}{rg}$$
$$\therefore\ \theta = \tan^{-1}\left(\frac{v^2}{rg}\right) = \tan^{-1}\left(\frac{10 \times 10}{10 \times 10}\right)$$
$$\therefore\ \theta = \tan^{-1}(1) = 45^\circ$$

24. $\omega = \frac{d\theta}{dt} = \frac{d}{dt}(2t^3 + 0.5) = 6t^2$
at t =2 s, $\omega = 6 \times (2)^2 = 24 rad/s$

25. Pressure

26. 1 Newton = 10^5 Dyne

27. Angular momentum
= $[ML^2T^{-1}]$, Frequency = $[T^{-1}]$

28. $[G] = [M^{-1}L^3T^{-2}]; [h] = [ML^2T^{-1}]$
Power = $\frac{1}{focallength} = [L^{-1}]$
All quantities have dimensions

29. Capacity $\times$ Resistance = $\frac{Charge}{Potential} \times \frac{Volt}{amp}$
= $\frac{amp \times second \times Volt}{Volt \times amp} = Second$

30. Percentage error in X $= a\alpha + b\beta + c\gamma$

31. $P = \frac{F}{A} = \frac{F}{l^2}$,
so maximum error in pressure (P)
$\left(\frac{\Delta P}{P} \times 100\right)_{max} = \frac{\Delta F}{F} \times 100 + 2\frac{\Delta l}{l} \times 100$
=4%+2×2%=8%

32. Since for 50.14 cm, significant number = 4 and for 0.00025, significant numbers = 2

33. $a = b^\alpha c^\beta / d^\gamma e^\delta$
So maximum error in a is given by
$\left(\frac{\Delta a}{a} \times 100\right)_{max} = \alpha.\frac{\Delta b}{b} \times 100 + \beta.\frac{\Delta c}{c} \times 100$
$+ \gamma.\frac{\Delta d}{d} \times 100 + \delta.\frac{\Delta e}{e} \times 100$

34. Percentage error is unit less

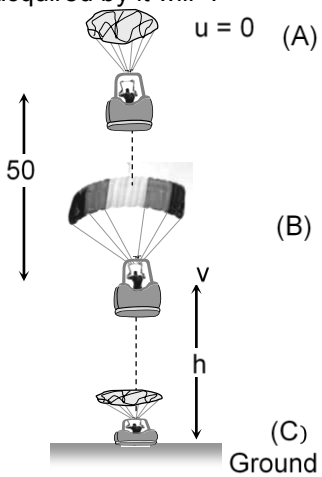
35. Here, $S = (13.8 \pm 0.2)$ m
and $t = (4.0 \pm 0.3)$ sec
Expressing it in percentage error, we have,

$$S = 13.8 \pm \frac{0.2}{13.8} \times 100\% = 13.8 \pm 1.4\%$$

and $t = 4.0 \pm \frac{0.3}{4} \times 100\% = 4 \pm 7.5\%$

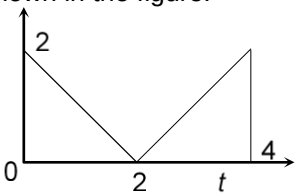
$$\because V = \frac{s}{t} = \frac{13.8 \pm 1.4}{4 \pm 7.5} = (3.45 \pm 0.3)\ m/s.$$

36. After bailing out from point A parachutist falls freely under gravity. The velocity acquired by it will 'v'



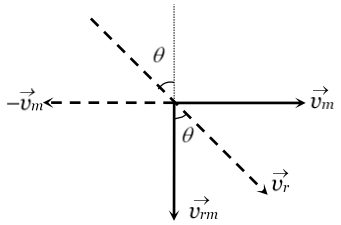
From $v^2 = u^2 + 2as = 0 + 2 \times 9.8 \times 50 = 980$
[As u = 0, $a = 9.8 m/s^2$, s = 50 m]
At point B, parachute opens and it moves with retardation of $2\ m/s^2$ and reach at ground (Point C) with velocity of $3 m/s$
For the part 'BC' by applying the equation
$v^2 = u^2 + 2as$
$v = 3 m/s$, $u = \sqrt{980} m/s$, $a = -2 m/s^2$, s = h
$\Rightarrow (3)^2 = (\sqrt{980})^2 + 2 \times (-2) \times h$
$\Rightarrow 9 = 980 - 4h$
$\Rightarrow h = \frac{980 - 9}{4} = \frac{971}{4} = 242.7 \cong 243$ m.
So, the total height by which parachutist bail out = 50 + 243 = 293 m.

37. The velocity time graph for given problem is shown in the figure.



Distance travelled S
= Area under curve= 2+2=4m

38. A man is sitting in a bus and travelling from west to east, and the rain drops are appears falling vertically down.



v_m = velocity of man
v_r = Actual velocity of rain which is falling at an angle θ with vertical
v_{rm} = velocity of rain w.r.t. to moving man
If the another man observe the rain then he will find that actually rain falling with velocity v_r at an angle going from west to east.

39. $\sin\theta$

40. The vertical component of velocity of projection $= -50\sin 30° = -25 m/s$
If t be the time taken to reach the ground,

$$h = ut + \frac{1}{2}gt^2 \Rightarrow 70 = -25t + \frac{1}{2} \times 10t^2$$

$\Rightarrow 70 = -25t + 5t^2 \Rightarrow t^2 - 5t - 14 = 0$
$\Rightarrow$ t= – 2s and 7s
Since, t = – 2 s is not valid $\therefore$ t = 7 s

41. $T = \frac{2u\sin\theta}{g} = 10 sec \Rightarrow u\sin\theta = 50\ m/s$

$$\therefore H = \frac{u^2 \sin^2\theta}{2g} = \frac{(u\sin\theta)^2}{2g} = \frac{50 \times 50}{2 \times 10} = 125 m$$

42. $|\vec{A}| = \sqrt{2^2 + 3^2 + (-1)^2} = \sqrt{4 + 9 + 1} = \sqrt{14}$

$|\vec{B}| = \sqrt{(-1)^2 + 3^2 + 4^2}$

$= \sqrt{1 + 9 + 16} = \sqrt{26}$

$\vec{A}.\vec{B} = 2(-1) + 3 \times 3 + (-1)(4) = 3$

The projection of $\vec{A}$ **on** $\vec{B} = \frac{\vec{A}.\vec{B}}{|\vec{B}|} = \frac{3}{\sqrt{26}}$

43. P and Q will be parallel
if $\frac{2}{1} = \frac{b}{1} = \frac{2}{1}$ $\therefore b = 2$

44. $\vec{A} = \hat{j} + 3\hat{k}$, $\vec{B} = \hat{i} + 2\hat{j} - \hat{k}$

$$\vec{C} = \vec{A} \times \vec{B} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 0 & 1 & 3 \\ 1 & 2 & -1 \end{vmatrix} = -7\hat{i} + 3\hat{j} - \hat{k}$$

Hence area
$= |\vec{C}| = \sqrt{49 + 9 + 1} = \sqrt{59}$ sq unit

45. 3 min

46. Angular momentum is a axial vector. It is directed always in a fix direction (perpendicular to the plane of rotation either outward or inward), if the sense of rotation remain same.

47. 3 2 4 1

48. (i) G, (ii) H, (iii) C, (iv) B, (v) C

49. 38.4

50. $Y = \frac{4MgL}{\pi D^2 l}$ so maximum permissible error in

$$Y = \frac{\Delta Y}{Y} \times 100 = \left(\frac{\Delta M}{M} + \frac{\Delta g}{g} + \frac{\Delta L}{L} + \frac{2\Delta D}{D} + \frac{\Delta l}{l}\right) \times 100$$

$$= \left(\frac{1}{300} + \frac{1}{981} + \frac{1}{2820} + 2 \times \frac{1}{41} + \frac{1}{87}\right) \times 100$$

$$= 0.065 \times 100 = 6.5\%$$

PART-B: CHEMISTRY

51. $HBrO_4 \rightarrow$ Perbromic acid

(+1) + x + 4(–2) = 0

x = +7

$HBrO_3 \rightarrow$ Bromic acid

(+1) + x + 3(–2) = 0

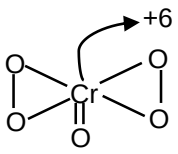
x = +5

Sum of oxidation numbers of Bromine = 7 + 5 = 12

52. 85%

53. 2.24 litre

54.



55. Molarity of acid = $\frac{1.2 \times 10^3}{24.2} = \frac{1000}{20}$ = 50 M

Neutralization reaction :

$$HA + NaOH \longrightarrow NaA + H_2O$$

$M_1V_1 = M_2V_2$

[50]×V = [0.24 × 25]

V = 00.12 ml

56. (A) Number of atoms= $\frac{1}{30} \times 8N_A = 0.27\ N_A$.

(B) Number of atoms = $\frac{1}{28} \times 2N_A = 0.07N_A$.

(C) Number of atoms= $\frac{1}{108} \times N_A = 0.009N_A$.

(D) Number of atoms= $\frac{1}{18} \times 3N_A = 0.167N_A$.

57. Molecular mass of $P_4 = 4 \times 31 = 124$ amu

$\therefore$ 124 amu of P_4 contains 1 molecule of P_4

$\Rightarrow$ 1 molecule of P_4 contains 4 atoms of P.

58. $KMnO_4$ is an oxidising so it can oxidise SO_2 readily.

$KMnO_4 + SO_2 \longrightarrow Mn^{2+} + SO_3$

NO_2 is strong oxidising agent, CO_2 is neither oxidising agent nor reducing agent,

59. Number of moles of N_2O in 100 g mixture = $\frac{66}{44}$ = 1.5

Number of moles of H_2 in 100 g mixture = $\frac{34}{2}$ = 17

$M_{average} = \frac{100}{18.5}$ = 5.40

60. $FeSO_4$

61. % $CO_2 = \frac{2}{2+1+2} \times 100 = 40\%$.

62. 1st reaction is not a redox reaction as the oxidation number of elements remains unchanged.

63. Moles of Ca in Ca = moles of Ca in CaO

or 1 × moles of Ca = 1 × moles of CaO

$\frac{1}{40} = \frac{m}{56}$ or m = 1.4 g

64.

Compound		Oxidation number of nitrogen
N_2H_4	=	–2

NH_3	=	–3
N_3H	=	–1/3
NH_2OH	=	–1

65. $\underset{(0)}{Cl_2} + OH^- \longrightarrow \underset{(-1)}{NaCl} + \underset{(+5)}{NaClO_3}$

66. mole of KOH = M × V(ℓ) = 1 × 0.1 = 0.1

Hence : mass of KOH = mole × molecular mass = 0.1 × 56 = 5.6 g

Sol. KOH के मोल= M × V(ℓ) = 1 × 0.1 = 0.1

67. 40 g, O ≡ 60 g metal

∴ 8 g, O ≡ 12 g metal (E)

68. Statement of avogadro's hypothesis.

69. CrO_2Cl_2

70. [Cl⁻]

$= \frac{2 \times \text{moles of } BaCl_2 + 1 \times \text{moles NaCl} + 1 \times \text{moles of HCl}}{0.5}$ [

Cl⁻] =

$= \frac{2 \times 1 + 1 \times 1 + 1 \times 1}{0.5} = \frac{4}{0.5} = 8$ M.

71. Fluorine is the most electronegative element in periodic table hence it shows –1 oxidation state in all its compounds.

72. Valency factor ratio is inversely related to molar ratio.

(V.f.)HI : (V.f.)HNO_3 = 1 : 3 = 2 : 6 ∴ Molar ratio = 6 : 2

73. Bicarbonates of Ca and Mg cause temporary hardness to water.

74. (a) $E = \frac{23}{1} = 23$ (b) $E = \frac{27}{3} = 9$

(c) $E = \frac{30}{1} = 30$ (d) $E = \frac{35.5}{1}$

(e) $E = \frac{60}{2} = 30$ (f) $E = \frac{96}{2} = 48$

(g) $E = \frac{95}{3} = 31.67$

75. $Cr_2O_7^{2-} + Fe^{2+} \rightarrow Fe^{3+} + Cr^{3+}$

15 ml 10 ml

0.1 M

$N_1V_1 = N_2V_2$

$15 \times 0.02 \times 6 = 10 \times M \times 1$

$M = \frac{15 \times 0.02 \times 6}{10} = 0.18 = 18 \times 10^{-2}$ M

76. more efficient as it can exchange both cations as well as anions

77. Molarity of H_2O_2 solution

$= \left\{\frac{\text{Volume strength}}{11.2}\right\}$

Volume strength = 8.9 × 11.2 = 99.68 V

78. Mass of $Cl_2 = \frac{1.12}{22.4} \times 71 = 3.55$ g

3.55 g Cl ≡ (5.56 – 3.55) g metal

35.5 g Cl ≡ 20.1 g metal (equivalent mass of metal)

79. 6×10^{23} electrons ≡ 1 equivalent

$\therefore 6 \times 10^{20}$ electrons $\equiv \frac{6 \times 10^{20}}{6 \times 10^{23}}$

= 0.001 equivalent

80. $SnC_2O_4 \longrightarrow Sn^{4+} + CO_2$

v.f. of $SnC_2O_4 = 2 + 2 = 4$

Now milli equivalent of $K_2Cr_2O_7$ = milli equivalent of SnC_2O_4

$0.3 \times 6 \times V = 0.2 \times 4 \times 5$

V **= 2.22 mL**

$SnC_2O_4 \longrightarrow Sn^{4+} + CO_2$

81. 33.25

82. 2 M sulphuric acid

83. the volume of the solution, the mass of the alkali present in it and its equivalent weight

84. $30 \times \frac{1}{12} = 20 \times N'$

$N' = \frac{30}{12 \times 20} = \frac{1}{8}$

$\therefore$ Strength = $N' \times$ equivalent mass

$= \frac{1}{8} \times 17 = 2.12$ g/L.

85. H_2O_2 acts as reducing agent when it releases electrons. i.e. (b) & (d)

86. Mol. wt. of gas = $\frac{16 \times 22.4}{5.6} = 64$ g

$32 + 16x = 64$

$x = 2$

87. $SO_3^{2-} \Rightarrow 1(x) + 3(-2) = -2$

$\therefore x = +4$

$S_2O_4^{2-} \Rightarrow 2(x) + 4(-2) = -2$

$\therefore x = +3$

$S_2O_6^{2-} \Rightarrow 2(x) + 6(-2) = -2 \therefore x = +5$

88. $N_2H_4 \xrightarrow{-10e^-} 2N^{x+}$

(-2)

$\therefore \quad 2x - 2(-2) = 10.$

$\therefore \quad 2x = 6$

$\therefore \quad x = +3.$

89. N_2H_4

90. 4 mol of R

R के 4 मोल

91. $x + \frac{y}{4}$

92. 8 g sulphur present in

= 100 g of organic compound.

$\therefore$ 32 g sulphur present in = $\frac{100}{8} \times 32$

= 400 g of organic compound.

Hence, minimum molecular weight of compound = 400 g/mol

93. 40

94. $H_2SO_4 + Ca(OH)_2 \longrightarrow CaSO_4 + 2H_2O$

Initial mole 0.5 0.2

0 0

finally mole 0.5 – 0.2 0

0.2 0.4

95. mass of iron recovered = 56 × 0.8 = 44.8 gm

96. 57.6 g

97. $CaCl_2 + NaCl = 10$ g

Let weight of $CaCl_2 = x$ g

$CaCl \rightarrow CaCO_3 \rightarrow CaO$

1 mol 1 mol 1 mol

$\frac{x}{111}$ mol $\frac{x}{111}$ mol $\frac{x}{111}$ mol

Mole of CaO = $\frac{1.62}{56}$

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

$x = 3.21$ g

% of $CaCl_2$ ($CaCl_2$ की %)

$= \frac{3.21}{10} \times 100 = 32.1$ %

98. $(Fe^{+2} \longrightarrow Fe^{+3} + e^-] \times 3$

$3e^- + N^{+5} \longrightarrow N^{+2}$

———————————

$3Fe^{+2} + N^{+5} \longrightarrow 3Fe^{+3} + N^{+2}$

$\frac{\text{mole of } Fe^{+2}}{\text{mole of } HNO_3} = \frac{3}{1}$; $\frac{8/56}{3 \times V} = \frac{3}{1}$

V = 0.01587 lit. = 15.8 ml 16 ml.

99. $2(+1) + 2\ x = 0$

$\therefore \quad x = -1$

100. $x = 20, y = 40$

--- TEXT SOLUTIONS (TS) END ----