Sri Chaitanya IIT Academy, India

A.P, TELANGANA, KARNATAKA, TAMILNADU, MAHARASHTRA, DELHI, RANCHI

A right Choice for the Real Aspirant

ICON CENTRAL OFFICE, MADHAPUR-HYD

Sec: Sr. IPLCO **JEE ADVANCED** **DATE : 13-12-15**
TIME : 3:00 **2012_P1 MODEL** **MAX MARKS : 210**

KEY & SOLUTIONS

PHYSICS

1	**C**	2	**B**	3	**A**	4	**D**	5	**A**	6	**C**
7	**D**	8	**B**	9	**B**	10	**D**	11	**BCD**	12	**AC**
13	**ABD**	14	**ACD**	15	**ABD**	16	**6**	17	**1**	18	**1**
19	**5**	20	**4**								

CHEMISTRY

21	**C**	22	**D**	23	**A**	24	**B**	25	**C**	26	**A**
27	**D**	28	**D**	29	**C**	30	**A**	31	**BC**	32	**ABC**
33	**ABD**	34	**AB**	35	**ABC**	36	**3**	37	**3**	38	**2**
39	**2**	40	**4**								

MATHEMATICS

41	**D**	42	**C**	43	**C**	44	**C**	45	**B**	46	**D**
47	**C**	48	**B**	49	**D**	50	**D**	51	**ACD**	52	**ABCD**
53	**ABCD**	54	**BC**	55	**ABD**	56	**1**	57	**1**	58	**2**
59	**1**	60	**4**								

CHEMISTRY

21. $r_x = r\ COCl_2$

$Mw\ of\ X = 99$

$\frac{v_1}{t_1} \times \frac{t_2}{v_2} = \sqrt{\frac{m_2}{m_1}}$

$\frac{50}{t} \times \frac{20}{100} = \sqrt{\frac{99}{11}}$

$\therefore t = \frac{10}{3} sec$

22. Gas X, Gas Y exhibits positive deviation from ideal behaviour

23. $P_1V_1 = P_2V_2$

$(0.5)(2000) = 100\,V_2$

$v_{the} = 10\,cc$

$v_{exp} > v_{the}$

Positive deviation

24. Conceptual

25. Difracted angle $(2\theta) = 30^0$

Glanscing angle $\theta = 15^0$

$2d \sin 15 = 1\lambda$

26. No. of tetrahedral voids = $8 \times \frac{1}{8} = 1$

No. of octahedral voids = 1

27. $k = k_1 + k_2 = 2 \times 6.93 \times 10^{-3}\ min^{-1}$

Half life = 50 min

After 50 minutes :

No. of moles A = 1/2

moles of B = 0.5

moles of C = 0.25

total moles = 1.25

28. $XO_3^- \rightarrow \frac{1}{2}X_2O_7$

I_{moles} a

t_{moles} a – x x/2

$6a \propto 5$

$x \propto 3$

$\therefore k = \frac{2.303}{9.212}\log\frac{5}{2} = 0.1\min^{-1}$

29. Energy released due to loss in mass
30. Conceptual
31. H_2 diffused repidley than D_2
32. Packing fraction same so density also same
33. Distance between two tetrahedral voids = a/ 2
34. k_1 / k_2
35. Conceptual
36. $r_{H_2} > r_{cH_4}$
37. $Fe^{+3} = 0.14$

$Fe^{+2} = 0.79$

% of $Fe^{+3} = \frac{0.14}{0.93} \times 100 = 15\%$

38. Formula of the compound = $X_4Y_4Z_8$

Final formula = $X_{3.5}Y_3Z_4$

39. $K_1 = \frac{0.693}{T}, K_2 = \frac{1}{aT}$

$r_1 = \frac{0.693}{T}(na)$

$r_2 = \frac{1}{aT}a^2$

1.386 = 0.693n

40. $a_0 = \frac{x}{20} \times 2^4 = 0.8x$

Remaining liquid = 160 ml