



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

TIME : 3:00

JEE ADVANCED

2012_P1 MODEL

DATE : 13-12-15

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. $r_x = r \text{ COCl}_2$

Mw of X = 99

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

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

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

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

23. $P_1 V_1 = P_2 V_2$

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

$$V_{\text{the}} = 10 \text{ cc}$$

$$V_{\text{exp}} > V_{\text{the}}$$

Positive deviation

24. Conceptual

25. Diffracted angle $(2\theta) = 30^\circ$

Glancing angle $\theta = 15^\circ$

$$2d \sin 15 = 1\lambda$$

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

No. of octahedral voids = 1

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

Half life = 50 min

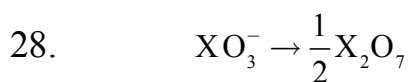
After 50 minutes :

No. of moles A = 1/2

moles of B = 0.5

moles of C = 0.25

total moles = 1.25



$I_{\text{moles}} \quad a$

$t_{\text{moles}} \quad a - x \quad x/2$

$6a \propto 5$

$x \propto 3$

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

29. Energy released due to loss in mass

30. Conceptual

31. H_2 diffused rapidly 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. $r_{\text{H}_2} > r_{\text{CH}_4}$

37. $\text{Fe}^{+3} = 0.14$

$\text{Fe}^{+2} = 0.79$

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

38. Formula of the compound = $\text{X}_4\text{Y}_4\text{Z}_8$

Final formula = $\text{X}_{3.5}\text{Y}_3\text{Z}_4$

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