



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 : 03-01-16

TIME : 02:00 PM TO 05: 00 PM

2013_P2 MODEL

MAX MARKS : 180

KEY & SOLUTIONS

PHYSICS

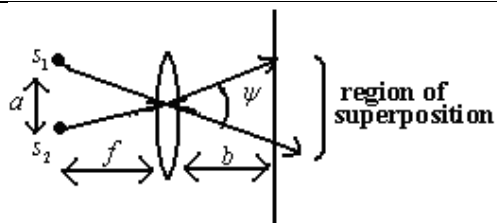
1	BC	2	ABC	3	ABC	4	ABD	5	D	6	ABCD
7	AB	8	BD	9	B	10	D	11	B	12	C
13	A	14	A	15	A	16	A	17	A	18	B
19	B	20	B								

CHEMISTRY

21	BD	22	BD	23	ABCD	24	BD	25	AB	26	AB
27	ABCD	28	BC	29	B	30	C	31	A	32	A
33	C	34	A	35	A	36	C	37	A	38	D
39	D	40	C								

MATHEMATICS

41	AD	42	C	43	ACD	44	C	45	AC	46	ABCD
47	ABCD	48	ACD	49	B	50	A	51	C	52	C
53	C	54	B	55	A	56	B	57	C	58	D
59	D	60	B								



$$\text{No. of fringes} = \frac{b\psi}{\beta} = 13.3$$

13 & 14.

Position of central maxima is shifted upwards by a distance $\frac{D(\mu_2 - 1)t}{d}$

$$\frac{D(\mu_2 - 1)}{d} = \frac{D\left(\frac{\mu_3}{\mu_1} - 1\right)t}{d}$$

$$\Rightarrow \frac{\mu_3}{\mu_1} = \mu_2$$

$$\Rightarrow \mu_3 = \mu_1 \mu_2$$

CHEMISTRY

21. Dissociation leads to lower molecular weight.

$$22. \quad m = \frac{2.4}{6.0} \times \frac{1000}{100} = 0.4m(\text{urea})$$

$$0.1m \text{ Hg}_2(\text{NO}_3)_2 \Rightarrow 3 \times 0.1m = 0.3m(\text{particles})$$

$$\frac{2.4}{6.0} \times \frac{1000}{90} \Rightarrow m > (0.4m)$$

$\text{Hg}_2(\text{NO}_3)_2$ 0.24 m urea solutions suffer depression in freezing point than 0.2 m NaCl.

23. Nernst Equation based.

24. Fact.

25. Common ion effect on HCOOH by HCOONa and NH_4OH by NH_4Cl .

26. Fact.

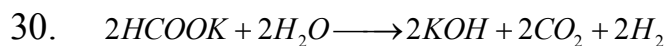
27. Change in Vanthoff Factor. After ppt is removed.

28. Boiling point of pure water 373K. Hence Ethanol – water azeotrope is a low boiling azeotrope.

$$29. \quad 10^{-2} F \Rightarrow [H^+] = 10^{-2} (\text{to be developed})$$

$$\text{Formed } [H^+] = 5 \times 10^{-3}$$

$$\therefore \text{efficiency} = \frac{5 \times 10^{-3}}{10^{-2}} \times 100 = 50\%$$



2 mol potassium formate $\Rightarrow 2 \times 22.4 \text{ ltrs}$

0.1 mole potassium formate $\Rightarrow 2.24 \text{ ltrs}$

After consumption of 0.1 F the solution becomes KOH.

31. On extrapolation the order of SRPS: $A > B > C > D$.

E_{cell}^0 maximum for 'A - D'

32. Greater the slope less valency more mole produced per faraday.

33. Fact.

34. Fact.

35. $i_1 C_1 = i_2 C_2$

$$i \times 0.1 = 1 \times 0.2 \Rightarrow i = 2$$

$$\Delta T_b = 0.1 \times 2 \times 0.52 = 0.104^\circ \text{C}$$

$$T_b = 100.104^\circ \text{C}$$

36. During dimerisation VantHoff factor varies between 0.5 to 1.0

Maximum elevation 0.52°C

Minimum elevation 0.26°C

37. Change in oxidation state \times atomicity = number of faradays.

38. $E_{\text{H}^+/\text{H}_2} = -0.06 P^H$

39. $\text{K}_4\text{Fe}(\text{CN})_6 \Rightarrow i = 5$

$$\text{CoCl}_3 \cdot 3\text{en} \Rightarrow [\text{Co}(\text{en})_3]\text{Cl}_3 \Rightarrow i = 4$$

$$\text{CoCl}_3 \cdot 3\text{NH}_3 \Rightarrow i = 1$$

$$\text{AgCN} \Rightarrow i = 2$$

40. Faraday's 2nd law based $1F \Rightarrow 1 \text{ gm eq}$