Sri Chaitanya IIT Academy, India

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A right Choice for the Real Aspirant

ICON CENTRAL OFFICE, MADHAPUR-HYD

Sec: Sr.IPLCO **JEE–ADVANCE** **Date: 20-12-15**
Time: 3 Hours **2011-P1-Model** **Max Marks: 240**

PAPER-I

KEY & SOLUTIONS

CHEMISTRY

1	**B**	2	**A**	3	**D**	4	**A**	5	**A**	6	**B**
7	**D**	8	**ACD**	9	**BC**	10	**BC**	11	**ABC**	12	**B**
13	**C**	14	**A**	15	**B**	16	**C**	17	**4**	18	**7**
19	**5**	20	**9**	21	**2**	22	**0**	23	**6**		

PHYSICS

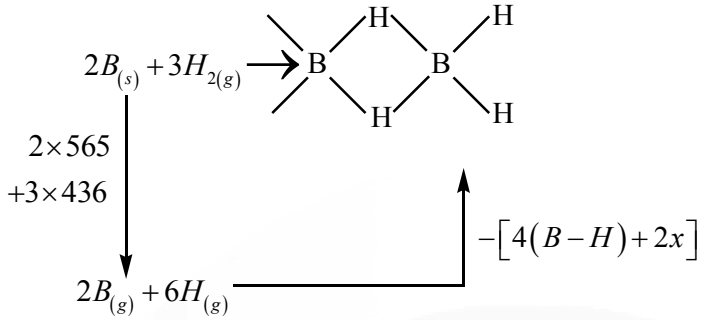
24	**B**	25	**A**	26	**B**	27	**C**	28	**B**	29	**D**
30	**D**	31	**B**	32	**CD**	33	**C**	34	**AD**	35	**B**
36	**A**	37	**A**	38	**A**	39	**C**	40	**0**	41	**0**
42	**1**	43	**2**	44	**2**	45	**6**	46	**3**		

MATHS

47	**A**	48	**D**	49	**D**	50	**A**	51	**B**	52	**D**
53	**A**	54	**ABC**	55	**AC**	56	**ABCD**	57	**ABC**	58	**B**
59	**C**	60	**A**	61	**B**	62	**A**	63	**1**	64	**2**
65	**5**	66	**2**	67	**9**	68	**5**	69	**5**		

CHEMISTRY

1.



$B_{(S)} + \frac{3}{2}H_2(g) \rightarrow BH_{3(g)}100KJ$

$100 = 565 + \frac{3}{2}\times436 - 3(B-H)$

$(B-H) = 373KJ/mol$

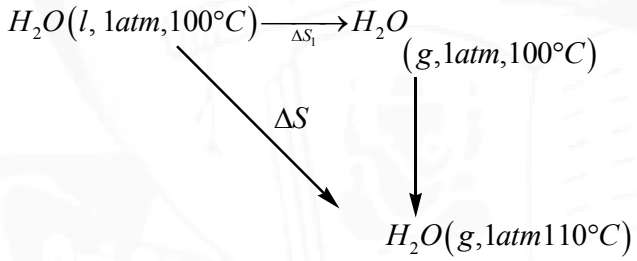
$\therefore 36 = 2\times565 + 3\times436 - 2x - 4\times473$

$x = 455$

4. $\Delta H_2 - \Delta H_1 = \left[2T + 0.1T^2\right]_{10}^{100}$

$\Delta H_2 - \left(-14.2\times10^3\right) = 2(90) + 0.1(9900)$

5.



$\Delta S_1 = \frac{\Delta H_{vap}}{373} = \frac{40\times1000}{373}$

$\Delta S_2 = nC_{P(gas)}\ln\frac{T_2}{T_1}$

$= 1\times35\ln\frac{383}{373}$

$\Delta s = \Delta s_1 + \Delta s_2$

6. $(\Delta H_{ionisation})_{HA} = \left|(\Delta H_n)\right|_{SA+SB} - \left|(\Delta H_n)\right|_{SA+WB}$

7. $\Delta H = \Delta E + P_{ext}\Delta V$

8. Conceptual

9. Conceptual

10. Conceptual

11. Conceptual

15. $\Delta U = \overline{C_V}\left(T_3 - T_2\right)$

16. Its a cyclic process $\Delta S = 0$

19. $H_3PO_3 \rightarrow 2H^+ + HPO_3;$ $\Delta H_r = ?$

$2H^+ + 2OH^- \rightarrow 2H_2O$ $\Delta H_r = -55.84 \times 2 =$ -111.68

Heat of neutralization of H_3PO_3 is 10x10.668

-106.68 = $\Delta H_{ion} - 111.68$

$\Delta H_{ion} - 5\,KJ/mole.$

21. $|\Delta H - \Delta U| = P\Delta V$

22. CONCEPTUAL

23. We have , $\eta = \frac{T_2 - T_1}{T_2} = \frac{800 - 600}{800} = 0.25 or 25\%$

Now, again we have,

$\eta = \frac{W}{q_2} = \frac{q_2 - q_1}{q_2}$

Where q_2 is the heat absorbed by the system from the source and q_1 is the heat rejected to the sink.