

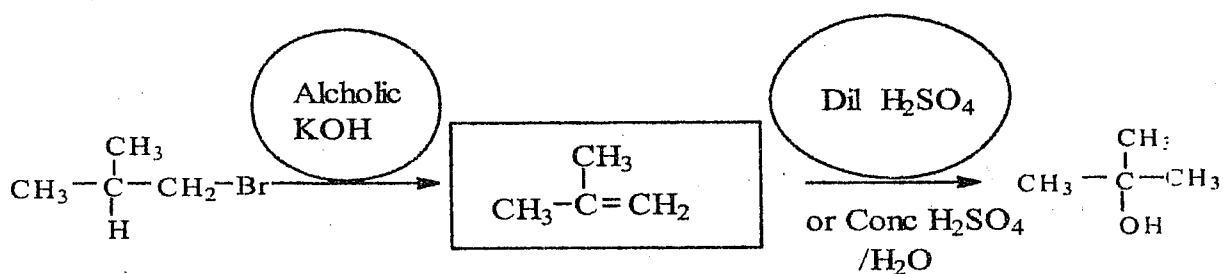
THE OPEN UNIVERSITY OF SRI LANKA
 Foundation Programme in Science/Continuing Education Programme
LEVEL 2- ASSIGNMENT TEST II (NBT) 2006/2007
PSF 2303/PSE 2303 – CHEMISTRY – LEVEL 2
 Answer Guide-Test Assignment II

MCQ

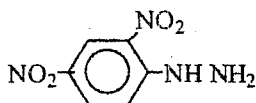
1. 3	4. 5	7. 3	10. 2	13. 4
2. 2	5. 1	8. 4	11. 3	14. 5
3. 4	6. all	9. 5	12. 1	15. 2

Structured Essay

1 (a).

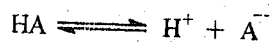


(b)



(C) Given structure was wrong

2 (a)



$$K_a = \frac{[\text{H}_{aq}^+][\text{A}_{aq}^-]}{[\text{HA}_{aq}]}$$

$$\begin{aligned} [\text{H}_{aq}^+] &= [\text{A}_{aq}^-] \\ [\text{HA}_{aq}] &= 12.2/122 = 0.1 \text{ mol dm}^{-3} \end{aligned}$$

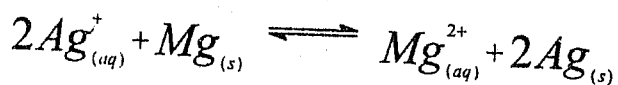
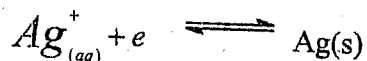
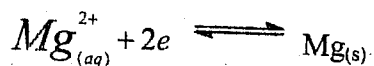
$$6.25 \times 10^{-7} = \frac{[\text{H}_{aq}^+]^2}{0.1}$$

$$[\text{H}_{aq}^+] = 2.5 \times 10^{-4}$$

$$\text{pH} = -\log_{10} |2.5 \times 10^{-4}|$$

$$\text{pH} = 3.6$$

b)

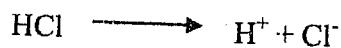


$$E_{\text{Cell}} = E_{\text{RHS}} - E_{\text{LHS}}$$

$$= 0.80 - (-2.37) \text{ V}$$

$$= 3.17 \text{ V}$$

(c)



$$\begin{aligned} [\text{H}^+] &= 1.2 \times 10^{-8} + 1.0 \times 10^{-7} \\ &= 1.12 \times 10^{-7} \end{aligned}$$

$$\text{pH} = -\log_{10} |1.12 \times 10^{-7}|$$

$$\text{pH} = 7 - \log_{10} 1.12$$

$$\text{pH} = 6.95$$