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
DURATION : 1 HOUR

DATE : 2007 – 01 – 17(Wednesday)	TIME : 3.00 p.m. TO 4.00 p.m.

Part A – Multiple choice Questions (marks 3× 15 = 45 marks

Answer all the questions

Choose the most correct answer to each question and mark a cross over the answer on the **given answer sheet**. Any answer with more than one cross will not be counted. Each **correct answer** will carry 3 marks. 0.5 marks will be deducted for **each incorrect answer.**

Gas constant, (R)	$=8.314 \text{ J K}^{-1} \text{ mol}^{-1}$
Avogadro constant , (L)	$=6.023 \times 10^{23} \text{ mol}^{-1}$
Plank constant, (h)	$=6.63 \times 10^{-34} \text{ Js}$
Velocity of light, (c)	$=3 \times 10^8 \text{ ms}^{-1}$
Standard atmospheric pressure,(Π)	$=10^5 \text{ Pa}$
$\text{Log}_e(X)$	$= 2.303 \log_{10}(X)$
1 atm	$= 1 \times 10^5 \text{ Nm}^{-2}$

1. Determine the concentration of $[H_3O^+]$ in 0.1 mol dm^{-3} CH_3COOH solution $K_a = 1.69 \times 10^{-5}$ mol dm^{-3}

    (1) 1.3×10^{-5} (2) 1.3×10^{-4} (3) 1.3×10^{-3} (4) 1.3×10^{-2} (5) 1.3×10^{-6}

2. During electrolysis the number of moles of electrons needed to deposit one mole of Al at Cathode is

    (1) 5   (2) 3   (3) 1   (4) 2   (5) 4

3. Find the $[H^+]$ ion concentration in mol dm^{-3} of 0.02 dm^3 of gastric juice containing 6.00×10^{-5} moles of Hydrogen ions

    (1) 2.0×10^{-2} (2) 3.0×10^{-2} (3) 2.0×10^{-3} (4) 3.0×10^{-3} (5) 6.0×10^{-3}

4. 20. 0 cm^3 of 0.4 mol dm^{-3} NaOH solution completely neutralizes 40.0 cm^3 of dibasic acid. The molarity of acid is, mol dm^{-3}

    (1) 0.1   (2) 0.3   (3) 0.5   (4) 0.4   (5) 0.2

5. 3.178 g of Barium Chloride were dissolved in distilled water and excess of H_2SO_4 acid were added. If the mass of Barium Sulphate is 3.019 g calculate the percentage of Barium in the Barium Chloride [Ba-137, S-32, O-16, Cl-35.5]

    (1) 55.85 %   (2) 31.78 %   (3) 30.19 %   (4) 90.18 %   (5) 10.15 %

6. The solubility of Magnesium Hydroxide is 2.0×10^{-4} mol dm^{-3} Calculate the solubility product

    (1) 3.2×10^{-5} (2) 1.6×10^{-5} (3) 4×10^{-5} (4) 3.2×10^{-6} (5) 4.0×10^{-6}

7. Increasing order of penetrating power of radioactive emission particles

(1) $\alpha < \gamma < \beta$　　(2) $\alpha = \beta < \gamma$　　(3) $\alpha < \beta < \gamma$　　(4) $\beta < \alpha < \gamma$　　(5) $\gamma < \alpha < \beta$

8. Hydrocarbon A contains 3g of carbon per gram of Hydrogen its formula is

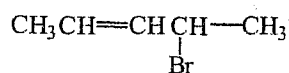(1) C_2H_6　　(2) C_2H_4　　(3) C_2H_2　　(4) CH_4　　(5) C_3H_8

9. An organic compound the empirical formula CH_2O and relative molecular mass -90 [C-12,H-1,O-16] Molecular formula of the compound is

(1) CH_2O　　(2) $C_2H_4O_2$　　(3) $C_3H_5O_3$　　(4) $C_4H_8O_4$　　(5) $C_3H_6O_3$

10. Number of Chain isomers of C_6H_{10} will be

(1) 4　　(2) 5　　(3) 6　　(4) 7　　(5) 8

11. Stereo isomers of the compound

$$CH_3CH=CH\underset{\underset{Br}{|}}{CH}-CH_3$$

are

(1) 2　　(2) 3　　(3) 4　　(4) 6　　(5) 8

12. Which Alkynes' will give the precipitate with ammonical solution of silver salts

(1) $CH_3 C\equiv C-H$　　(2) $CH_3 C\equiv C-CH_3$　　(3) $CH_3 \underset{\underset{CH_3}{|}}{CH} C\equiv C-\bigcirc$　　(4) $CH_3 C\equiv C-CH_2CH_3$

(5) None of the above

13 Following conversion can be done by using which of the chemical reagent/s

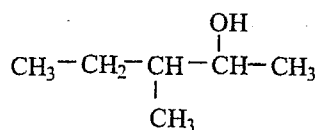$$CH_3 \overset{\overset{O}{||}}{C} CH_2 CH_2 \longrightarrow CH_3CH_2CH_2CH_2CH_3$$

(1) NaOH　　(2) $LiAlH_4$　　(3) CaO/NaOH　　(4) Zn/Hg/HCl　　(5) $H^+/KMnO_4$

14. Which Aldehyde or ketone **does not** undergo aldolcondensation reaction

(1) $CH_3CH_2 \overset{\overset{O}{||}}{C}-H$　　(2) $CH_3 \overset{\overset{O}{||}}{C} CH_3$　　(3) $CH_3-\overset{\overset{H}{|}}{\underset{\underset{CH_3}{|}}{C}}-\overset{\overset{O}{||}}{C}-H$　　(4) $CH_3-\overset{\overset{H}{|}}{\underset{\underset{CH_3}{|}}{C}}-\overset{\overset{O}{||}}{C}-\bigcirc$　　(5) $CH_3-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-\overset{\overset{O}{||}}{C}-H$

15. IUPAC name of the given compound is

$$CH_3-CH_2-\underset{\underset{CH_3}{|}}{CH}-\overset{\overset{OH}{|}}{CH}-CH_3$$

(1) 3-Methyl-1-pentanol (2) 3-Methyl-2-pentanol (3) 3-Hexanol (4) 1,3-Dimethyl-1-butanol
(5) 1-Hexanol