

## Model Question of HSC Examination 2015

## (English Version)

## Subject : Chemistry 1st Paper (Creative)

Time : 2 Hours 10 Minutes

Full Marks—40

1. ► 30 cm<sup>3</sup> 0.1 M NaOH solution was added in to 100 cm<sup>3</sup> 0.1 M ethanoic acid solutions in a container A. In container B, 0.001 M 1cm<sup>3</sup> HCOOH was added with solution of container A.

- What is Chemical bond? 1
- Graphically explain the dynamic equilibrium of any chemical reaction. 2
- Find out the amount of salt produced in the stem. 3
- Find out pH of the solution in container A and discuss its pH change in container B? 4

2. ► In natural drug discovery first bioactive compounds are isolated from natural sources (seed, bark, leaves, muscle, liver etc) then they are analyzed through different chromatographic methods like TLC, Paper chromatography, Column chromatography, GLC, HPLC etc.

- What is food preservation? 1
- Why preservation of Ghee is more convenient than preservation of butter? 2
- How you will extract bioactive oily substance from Black seed? 3
- Among the analyzing methods which one is more convenient in your laboratory for separation and identification of essential components from that oily layer, explain that process. 4

3. ► At the Age of sixty Mr. Anis feel pain in his legs, suddenly he injured in his head during morning walk then doctor suggested him for MRI.

- What is radiation? 1
- Explain the limitations of Shore Atomic Model? 2
- With the radiation therapy how Mr. Anis can be cured, Is it better than medication, why? 3
- How doctor's suggestion will help to identify Mr. Anis's injury explain with drowning suitable images? 4

4. ► Jahir is performing a Acid-Base titration in his college laboratory with 10 ml of 0.1 M Na<sub>2</sub>CO<sub>3</sub> solution and 15 ml of HCl was required to complete the titration.

- What is standard solution? 1
- How burette is cleaned in the laboratory? 2
- How Jahir will make his standard solution in a 250 mL volumetric flask. 3
- Find out strength of that HCl, can Jahir use NaOH instead of Na<sub>2</sub>CO<sub>3</sub>? explain your logic. 4

5. ► Metal legend bond indicates coordination covalent bond, for an example H<sub>2</sub>O, NH<sub>3</sub>, CO they can act as legend with transition metals i.e: Cr, Fe, Co, Ni, Cu.

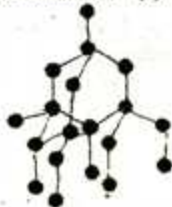
- What is ionization potential? 1
- Explain ionic character in Hydrochloric Acid. 2
- Among these legends which will have minimum bond angle and why? 3
- Using same metal and different legend from the stem explain metal-legend bond with different hybridization. 4

6. ► Almond/Soyabin oil, Parafin, Antiseptic, Rose water, Glycerol / Glycerine, Perfume, Borax, Bee wax, Coloring agent, EDTA these are widely used in cosmetics production with some definite functions.

- What is cosmetic? 1
- Why knowledge of food chemistry is important for a balance diet? 2
- How you will make any cosmetic specially for men from the above materials? 3
- From these ingredients what type of winter cream can be prepared and how their functions are different from vanishing cream. 4

[ Darken the circle (O) with black ball point pen from the alternatives ]

- How many element is included in f block element?  
 (a) 10 (b) 20  
 (c) 30 (d) 40
- Which one is not transition element?  
 (a) Co (b) Ni  
 (c) Cu (d) Zn
- What is the atomic number of Lv?  
 (a) 114 (b) 115  
 (c) 116 (d) 117
- 1st ionization potential of sodium is—  
 (a) 496 kJ/mol (b) 497 kJ/mol  
 (c) 498 kJ/mol (d) 499 kJ/mol
- What is the bond angle of  $\text{CH}_2 = \text{CH}_2$ ?  
 (a)  $109^\circ 28'$  (b)  $120^\circ$   
 (c)  $180^\circ$  (d)  $210^\circ$
- Electronegativity of Florine is—  
 (a) 1 (b) 2  
 (c) 3 (d) 4
- Energy of Hydrogen bond is—  
 (a) 10-20 kJ/mol (b) 10-30 kJ/mol  
 (c) 10-40 kJ/mol (d) 10-50 kJ/mol



- The structure is—  
 i. Diamond  
 ii. Graphite  
 iii. Fularins  
 Which one is correct?  
 (a) i (b) ii  
 (c) iii (d) ii and iii
- The bond length of C-C in above figure is—  
 (a) 136 nm (b) 140 nm  
 (c) 145 nm (d) 154 nm
- $\text{H}_2 + \text{I}_2 \rightarrow 2\text{HI}$   
 The essential temperature of this reaction is—  
 (a)  $250^\circ\text{C}$  (b)  $350^\circ\text{C}$   
 (c)  $450^\circ\text{C}$  (d)  $550^\circ\text{C}$
- CM Guldberg is the scientist of—  
 (a) German (b) France  
 (c) India (d) Norway

- What is the PH of our blood?  
 i. 6.4  
 ii. 7.4  
 iii. 8.4  
 Which one is correct?  
 (a) i and iii (b) ii  
 (c) iii (d) i, ii and iii
- What is color of  $\text{NiSO}_4$   
 (a) Green (b) Blue  
 (c) Yellow (d) White
- GH Hess invent his law in—  
 (a) 1830 (b) 1840  
 (c) 1850 (d) 1860
- Carminic acid is collected from—  
 (a) Man (b) Cow  
 (c) Goat (d) Insect
- Formula of borax is—  
 (a)  $\text{NaB}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$   
 (b)  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$   
 (c)  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$   
 (d)  $\text{Na}_4\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$
- 5M NaOH is  
 (a) 100 gm NaOH  
 (b) 200 gm NaOH  
 (c) 300 gm NaOH  
 (d) 400 gm NaOH
- Recognized hazard symbol is—  
 (a) 8 (b) 9  
 (c) 10 (d) 11
- Radius of a nucleus is—  
 (a)  $1 \times 10^{-10}$  cm (b)  $1 \times 10^{-13}$  cm  
 (c)  $1 \times 10^{-16}$  cm (d)  $1 \times 10^{-19}$  cm
- Azimuthal quantum number is expressed by  
 (a) l (b) m  
 (c) n (d) s
- Which one is alkaline earth metal?  
 (a) Sc (b) Y  
 (c) Mo (d) Ra
- Color of  $\text{Ca}(\text{OH})_2$  is—  
 i. White  
 ii. Pink  
 iii. Blue  
 Which one is correct?  
 (a) i (b) ii  
 (c) iii (d) i, ii and iii
- What is the boiling point of Rb?  
 (a)  $580^\circ\text{C}$  (b)  $600^\circ\text{C}$   
 (c)  $688^\circ\text{C}$  (d)  $700^\circ\text{C}$
- The shape of  $\text{BaCl}_2$  is—  
 (a) Linear (b) Pyramidal

- Bi pyramid (d) Hexagonal
- Number of lone pair electron in water is—  
 (a) 0 (b) 1  
 (c) 2 (d) 3
- Homogeneous catalyst of above reaction is  
 (a) NO (b)  $\text{Al}_2\text{O}_3$   
 (c) Pt (d) Fe
- $\Delta H$  value of this reaction is  
 i. 91.38 kJ  
 ii. 92.38 kJ  
 iii. 93.38 kJ  
 Which one is correct?  
 (a) i (b) ii  
 (c) i & ii (d) ii & iii
- Which one is formed by  $\text{SP}^2$  hybridization?  
 (a)  $\text{CH}_4$  (b)  $\text{H}_2\text{O}$   
 (c)  $\text{C}_2\text{H}_4$  (d)  $\text{C}_2\text{H}_2$
- Why  $\text{CO}_2$  is called dry ice?  
 (a) It is white like ice  
 (b) It Wet the cloth  
 (c) Looks white but dosen't wet the cloth  
 (d) It melts & disappears
- How many pie bond is present in  $\text{C}_2\text{H}_2$   
 (a) 1 (b) 2  
 (c) 3 (d) 4
- Most Non polar molecule is—  
 (a) HI (b) HBr  
 (c) HCl (d) HF
- Inter molecular force of covalent compound is called—  
 (a) Vander walls attraction force  
 (b) Metallic bond  
 (c) Hydrogen bond  
 (d) Dipole dipole attraction
- What is bond angle of C-H in methane molecule?  
 (a)  $104^\circ 5'$  (b)  $107^\circ$   
 (c)  $109^\circ$  (d)  $109^\circ 28'$
- Who invent neutron?  
 (a) Chadwick (b) Tomson  
 (c) Bohr (d) Hund
- Which color show by caicium in flame test?  
 (a) Golden yellow (b) White  
 (c) Violet (d) Brick red

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