Cantonment Public School & College, Saidpur.

HomeTest -1- 2020
Subject: Chemistry 1st & 2nd paper
Sub-code: 176 & 177
Class: XI (English Version)
(MCQ)

Time: 25 minutes   Full marks: 25

1. Which is the strongest conjugate base in the following ?
   a. HS^- b. HCO_3^-
   c. F^- d. $H_2PO_4^-$

2. Which metal inhances the ability of glucose tolerance of patients affected with diabetes?
   a. Cr(VI)   b. Cr(III)
   c. b(II)   d. As(III)

3. Equal mass of H_2, O_2 and CH_4 have been taken in a container of volume V at temperature 27C in identical conditions. The ratio of the volumes of gases $H_2:O_2:CH_4$ would be-
   a. 8:16:1   b. 16:8:1
   c. 16:1:2   d. 8:1:2

4. The energy of second Bohr orbit of the hydrogen atom is $-328 kJmol^{-1}$; hence the energy of fouth Bohr orbit would be-
   a. $-48 \ kJmol^{-1}$
   b. $-1312 \ kJmol^{-1}$
   c. $-164 \ kJmol^{-1}$
   d. $-82 \ kJmol^{-1}$

5. Which of the following is polar compound?
   a. SF_4 b. SiF_4
   c. BCl_3 d. CO_2

6. The RMS velocity of O_2 molecule at 111°C is-
   a. $\sqrt{30R}$ b. $\sqrt{32R}$
   c. $\sqrt{R}$ d. $\sqrt{12R}$

   Answer the question number 7 and 8 according to the stem.

Group\Periode	15	16	17
2nd	D	G	
3^{3d}	E		F

7. Which one has existence in normal state?
   a. D_4 b. G_3
   c. E_3 d. F_4

8. In the steam-
   i.   Ionization energy of D is greater than
   ii. GF_6 is not possible
   iii. EF_3 is hydolysed
   which one is correct?
   a. i & ii   b. i & iii
   c. ii & iii   d. i, ii & iii

9. In Basic medium the change of oxidation number of Mn occur in reaction between $KMnO_4$ and Oxalic acid is-
   a. +7 to +2
   b. +7 to +4
   c. +7 to +6
   d. +7 to +3

10. $P_2O_5 + H_2O \rightarrow X$ In this reaction applicable for X-
    i.   basicity 3
    ii. O.N of central atom is +5
    iii. polyprotic acid
    which one is correct?
    a. i & ii   b. i & iii
    c. ii & iii   d. i, ii & iii

11. M_1^{2+}/M_1 = +0.76V, M^{2+}/M=+2.30V what will be the cell potential of these two half cell are connected?
    a. $-1.96V$ b. +1.54V
    c. $-2.65V$ d. +2.65V

12. p^H of a saturated solution of $Ca(OH)_2$ is 9. The value of solubility product of $Ca(OH)_2$ is-
    a. 0.125×10^{-15}
    b. 0.5×10^{-10}
    c. 0.5×10^{-15}
    d. 0.25×10^{-10}

13. When mixed with equal volume of 0.1M NaOH and 0.01M HCl then p^H of the mixed solution will be-
    a. 2.0   b. 7.0
    c. 1.04   d. 2.24

14. Which one has the highest second ioniziaton potential in the following?
    a. Neon
    b. Sodium
    c. Nitrogen
    d. Oxygen

15. What is the correct electronic configuration of the central atom in $K_4[Fe(CN)_6]$ based on crystal field theory?
    a. $e_g^3 \ t_{2g}^3$
    b. $t_{2g}^3 \ e_g^3$
    c. $t_{2g}^6 \ e_g^0$
    d. $t_{2g}^4 \ e_g^2$

16. Kinetic energy of gas depended-
    i. Temperature
    ii. Pressure and Volume
    iii. Naure of the gas
    which one is correct?
    a. i & ii   b. i & iii
    c. ii & iii   d. i, ii & iii

17. The energies of E_1 and E_2 of two radiations are 25eV and 50eV respectively. The relation between their wavelenths λ_1 and λ_2 will be-
    a. $\lambda_1=\lambda_2$ b. $\lambda_1=2\lambda_2$
    c. $\lambda_1=4\lambda_2$ d. $\lambda_1=\dfrac{1}{2}\lambda_2$

18. Which one is used as a mobile phase in HPLC?
    a. N_2 gas   b. Methanol+water
    c. Alumina Gel   d. Silica Gel

19. The weight of silver displaced by a quantity of electricity which displaces 5600mL of O_2 at STP will be-
    a. 5.4g   b. 10.8g
    c. 54.0g   d. 108g

    Answer the question number 20 and 21 according to the stem.

Compond	Boiling point	Decompositon Temperature
A	90°C	110°C
B	110°C	90°C
C	140°C	150°C

20. Which method is used to separated A & B from their mixture?
    a. Vacuum distillation
    b. Steam distillation
    c. Fractional distillation
    d. Sublimation

21. AC mixture is easily separated than AB. Because-
    i. Difference of boiling point A & C is high
    ii. B is dicomposed under it's boiling temperature
    iii. To separated A & C needed fractional column
    which one is correct?
    a. i & ii   b. i & iii
    c. ii & iii   d. i, ii & iii

22. The pair of compounds that can exist together is-
    a. $FeCl_3$, $SnCl_2$
    b. $HgCl_2$, $SnCl_2$
    c. $FeCl_2$, $SnCl_2$
    d. $FeCl_3$, KI

23. The Faradays law is Applicabe for-
    i. electronic conductor
    ii. eletrolytic conductor
    iii. molted Al_2O_3
    which one correct?
    a. i & ii   b. i & iii
    c. ii & iii   d. i, ii & iii

24. The highest wave number for paschen series in the spectrum of hydorgen atom is-
    a. $\dfrac{RH}{9}$ b. $\dfrac{5}{36RH}$
    c. $\dfrac{7}{144RH}$ d. $\dfrac{144}{7RH}$

25. Which of the following is paramagnetic ?
    a. CO   b. O_2^{-}
    c. CN^{-} d. NO^{+}

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Home Test-1-2020
Class: XI (English Version)
Subject: Chemistry 1st & 2nd paper
Sub-code:176 &177
(Creative Question)

Time: 2 hours 35 minutes   Marks- 50

[Read the following stems carefully and answer the questions according. Answer 5 of the following questions but at least two question answer each of the set]

A-set (Chemistry 1st paper)

1.   i. 50g solute is dissolved in 1 litre aqueous solution. Extracted the solute keeping the solution in a separated funel with 400mL ether at one time. [Distribution coefficient in favour of ether is $K_D=6$]

   ii. The frequency of an electromagnetic radiaion is $6.91 \times 10^{14}\, s^{-1}$

   a.   What is called phosphorescence?   1
   b.   Why the second electron affinity of oxygen atom is poistive?   2
   c.   Find out the amount of the extracted solute according to the steam.   3
   d.   Which frequency line of Hydrogen atomic spectrum series is similar with the frequency of the radiated ray of the steam? Analyze maathematically.   4

2.   The solubility product of H_2S and NiS are 1.0×10^{-21} & 1.5×10^{-24} respectively. The satuarated solution of H_2S is added with adding acidic HCl in 0.0001M Cu^{2+} and 0.0001M Ni^{2+} solution.

   a.   What is called aziotropic mixture?   1
   b.   Why polarization of Al^{3+} is not possible by Cl^- in $AlCl_3$? Explain.   2
   c.   Find out the solubility of NiS in 0.1M Na_2S solution.   3
   d.   How much concentration of H^+ ion in H_2S saturated solution would be if just only to form precipitate of CuS? Analyze maathematically.   4

3.   The quantum number of outermost electron of R and Q atom-

Atom	n	l	m	s
R	3	2	$-2, -1, 0, +1, +2$	$5(+\frac{1}{2}), 3(-\frac{1}{2})$
	4	0	0	$\pm\frac{1}{2}$
Q	3	2	$-2, -1, 0, +1, +2$	$5(\pm\frac{1}{2})$
	4	0	0	$+\frac{1}{2}$

   a.   What is called polarity?   1
   b.   The reaction between Cl_2 and NaOH (hot and concentrated) is disproportion reaction- Explain.   2
   c.   Why does Q^{2+} ion forms colour coplex ion when reacts with excess ammonia solution? Explain.   3
   d.   Will be the same structure of the Complex ions $[R(CN)_4]^{2-}$ and $[Q(CN)_4]^{2-}$? Give your opinion by analyze.   4

4.

| group→ / periode↓	13	15	16	17
2rd	M	X	Y	
3rd				Z

   a.   What is called chealation?   1
   b.   Why the ZnS covered screen is used in Rutherford alpha particle experiment?   2
   c.   Why MZ_3 compound gives hydrolysis reaction? Explain with reaction.   3
   d.   Though the same hybridization process of central atom of XH_4^+ and H_3Y^+ but their shape are different- Analyze.   4

# B-set (Chemistry 2nd paper)

5. 100mL sample solution of a pond is kept in a dark room. X gas and Y gas is produced after oxidizing the organic polluted substance in that water after 5 days later. To titrate that sample water 15mL solution of 0.001M $Na_2S_2O_3$ is needed after 5 days. [The amount of oxygen in X gas is 72.72% and the amount of oxygen in Ygas is 88.88%]

 a. What is called molar absorption coefficient? 1
 b. Why H_2S doesn't show oxidation properties? 2
 c. Find out the amount of DO in ppm unit of the sample water of the steam. 3
 d. By which theory the oxidized gas X and Y are defined as acid and base- Analyze it with proper reaction. 4

6.

(i)   (ii)
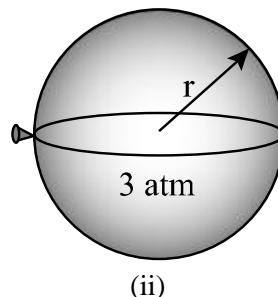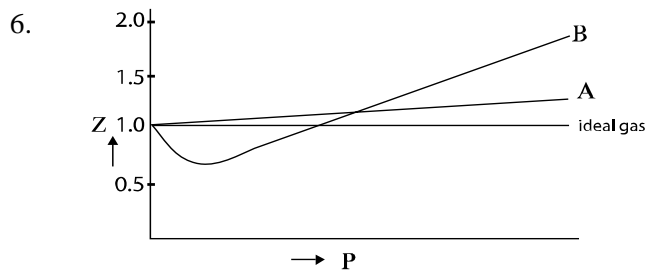
 a. What is reference electrode? 1
 b Why is Dalton's partial pressure law not application for the mixture of H_2 and Cl_2 gas? Explain 2
 c. How much external pressure will be applied when the diameter of the sphere will be $\frac{1}{2}$ portion of initial diameter at constant temperature? 3
 d. Why Z<1 is for B gas at low pressure but Z>1 is for A gas at low pressure? analyze. 4

7.

(i)   (ii)   (iii)
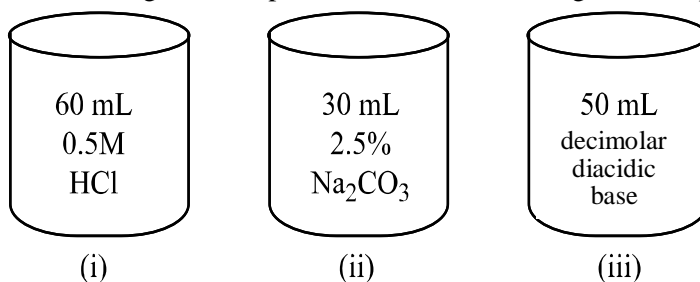
 a What is called neutral point? 1
 b. Why H_3PO_2 is called monobasic acid? Explain. 2
 c. Calcualte the number of Na^+ ion in pot number (ii) 3
 d. Is it possible to neutralized the solution (i)+(ii) by the solution no (iii) of the steam? analyze mathematically. 4

8.

$[E^\circ_{Zn/Zn^{2+}} = +0.76V$, $E^\circ_{Ag^+/Ag} = +0.88V, T=298K]$
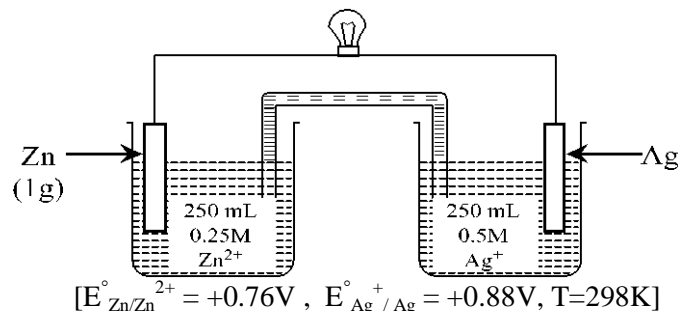
 a. What is boltzman constant? 1
 b. Why methyle orange or Phenolpthaeline indicator does not use for the titration between CH_3COOH and NH_4OH? 2
 c. Find out the concentration of the solution of right container of the cell after using the cell. 3
 d. Is it possible to lit a light of 1.75V by the cell of the steam? analyze mathematically. 4