Subject Code : 1 3 7

Model Question of SSC Examination 2016
Sub: Chemistry (Creative)

Time: 2 Hours 10 minutes | Total Marks-40

(Answer any four of the following Questions)

1. ▶ 'X' is an element placed 3rd period and Group-16 in the periodc table which is extracted from mine by Frush process. It can be converted to different compounds by the following reactions:

(i) $X(s) + O_2 \xrightarrow{\text{Burning}} Y(g)$

(ii) $Y(g) + O_2 \longrightarrow Z(g)$

(iii) $Z(g) + H_2O \longrightarrow A$

(iv) $A + Z \longrightarrow B,\ B + H_2O \longrightarrow A$

a. What is biofuel? 1

b. When pH of the neutralization reaction of H_2CO_3 and NaOH is more than 7? 2

c. Determine the limiting reactant in reaction (ii) when 112g m 'Y' react with 32 gm oxygen. 3

d. Between the process (iii) and (iv) which one is preferable for the production of the compound 'A'? Give reasons for your answer. 4

2. ▶ A compound 'X' composed of carbon, hydrogen and oxygen, where C = 54.54%, H = 9.09% and its molecular mass is 88. The compound 'X' is an organic acid.

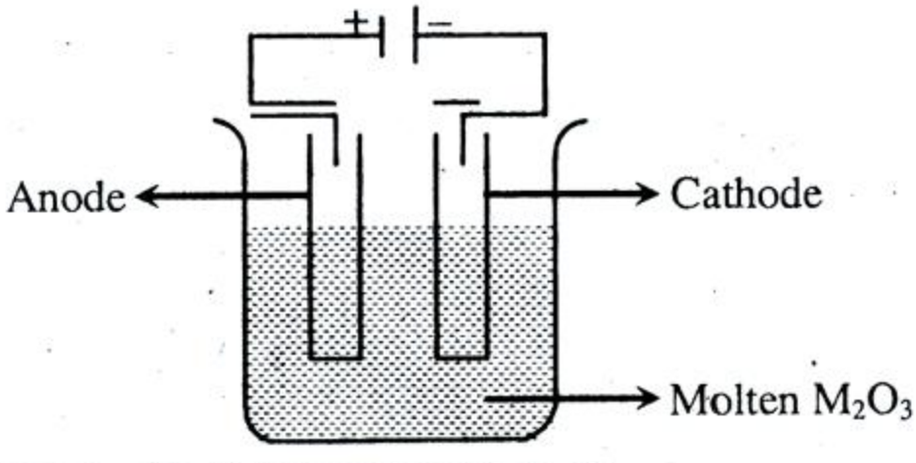
a. What is electronegativity? 1

b. Why graphite conducts electricity but diamond does n't? 2

c. Determine the molecular formula of the compound 'X'. 3

d. Is it possible to prepare the compund 'X' from butane? Justify your answer with required reaction. 4

3. ▶



a. What is kinetic theory of particles? 1

b. "Nylon is a condensation polymer"-Explain with reaction. 2

c. Explain the reactions occurs at cathode and anode in the above electrolysis. 3

d. How will you prepare caustic soda using above cell by changing its electrolyte? Write with reactions. 4

4. ▶ $C_{15}H_{32} \xrightarrow[\text{high presure}]{\text{high tenp}} 2X_{(g)} + Y_{(g)} + Z_{(g)}$.

X & Y are the two successive members of alkene. Molecular mass of them are 28 and 42 respectively.

a. What is cracking? 1
b. Acetylene is unsaturated hyrocarbon-Explain. 2
c. Explain the bond involved in the formation of the compound 'Z'. 3
d. Why the compound X and Y can declourize orange-reddish colour of Br_2 and the viole colour of $KMnO_4$ but Z can't? Explain with reactions. 4

5. ▶ 'R' is a chemical reagent which is used to identify the presence of aldehyde (–CHO) group in a compound. It is an alkaline solution of $AgNO_3$. It 'R' is added in a test tube containing acetaldehyde. Then silver mirror is produced on the wall of test tube due to redox reaction.

a. What is reversible reaction? 1
b. Why calcium is called alkaline earth metal? 2
c. Find out the oxidation number of metal present in the reagent 'R'. 3
d. "Reaction between 'R' and acetaldehyde is a redox reaction" Analyze the statement. 4

6. ▶ X, Y and Z are the three different metallic chlorides. They do not give any colour in the flame test. If NaOH is added in aqueous solution of these three salt separately. 'Y' gives White precipitation, 'Z' gives light green precipitation and no changes occur in case of 'X'. If excess NaOH passed, then precipitation of 'Y' disappear but precipitation of Z doesn't change. Hydrolysis reaction of Y and Z form acidic solution.

a. What is acid rain? 1
b. What is ment by the bond energy of H_2 is 435 KJ/ mole? 2
c. What are the metal ion present in X, Y and Z? Explain with reactions. 3
d. Hydrolysis reaction of 'Y' and Z form acidic solution- Analyze the statement. 4

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Model Question of SSC Examination 2016
Sub: Chemistry (MCQ)

Time: 35 minutes | Total Marks- 35

[Darken the circle (O) of the correct option from the following alternatives]

1. **Which of the following is known as carbolic acid?**
   ⓐ Benzene ⓑ Bapthalene
   ⓒ Phenol ⓓ Formalin
2. **Which of the following reaction proceed backward direction at equilibrium when pressure is decreased?**
   ⓐ $A_2B_4 \rightarrow 2AB_2$
   ⓑ $2XY_2 + Y_2 \rightarrow 2XY_3$
   ⓒ $P_2 + Q_2 \rightarrow 2PQ$
   ⓓ $MZ_5 \rightarrow MZ_3 + Z_2$
3. **How many water molecule are there in 0.20 gram blue vitriol?**
   ⓐ 2.14×10^{21} ⓑ 2.5×10^{22}
   ⓒ 3.5×10^{23} ⓓ 4.5×10^{22}
4. **$Fe_2O_3 + X \rightarrow Fe + CO_2$**
   In the reaction, "X"
   i. oxidizes Fe_2O_3
   ii. doesn't follow octet rule
   iii. corroded ozone layer
   Which one is correct?
   ⓐ i ⓑ i & ii
   ⓒ ii & iii ⓓ i, ii & iii
5. **What is used to delect the movement of phosphate thoroughly within the plant?**
   ⓐ Radioactively ray
   ⓑ Geiger Counter
   ⓒ C-14 isotope
   ⓓ MRI-Machine

Three element A, B & C, Proton number of these element are Z, Z + 1 and Z + 2 respectively. Atomic number of 'B' is 36. (Here A, B and C don't represent symbol of any element)

Based on above stem, answer to the question no. 6 and 7.

6. **The element 'A'**
   i. can form diatomoc molecule with itself
   ii. for covalent compound with C
   iii. gives addition reaction
   Which one is correct?
   ⓐ i ⓑ i & ii
   ⓒ i & iii ⓓ i, ii & iii
7. **Which of the following element placed same group with the element 'C'**
   ⓐ Kr ⓑ Ca
   ⓒ Cs ⓓ Al
8. **Least electron of which metal enters to d-orbital?**
   ⓐ Alkali metals
   ⓑ Alkaline earth metals
   ⓒ Halogens
   ⓓ Coinage metals
9. **Which of the following gases turns red litmus into blue?**
   ⓐ NH_3 ⓑ CH_4
   ⓒ HCl ⓓ SO_2
10. **Which of the following is the ore of thorium?**
    ⓐ Monanzite ⓑ Zircon
    ⓒ Rutile ⓓ Limonite
11. **Sedative medicine is produced from which compound?**
    ⓐ Acetone ⓑ Methanol
    ⓒ Ethanal ⓓ Propene
12. **What is the oxidation number of the element oxygen in compound XO_2? (Atomic no. of X is 19)**
    ⓐ −2 ⓑ − 1
    ⓒ 0 ⓓ − 0.5

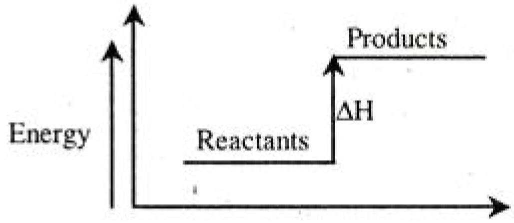
Name of the cleaning agent	Main ingredient
Toilet Cleaner	X
Bleaching powder	Y
Detergent	Z

13. **According to above stem—**
    i. pH of the aqueous solution of X is more than 7
    ii. Y decomposed to form nascent oxygen
    iii. Z having hydrophilic and hydrophobic part both
    Which one is correct?
    ⓐ i ⓑ i & ii
    ⓒ i & iii ⓓ i, ii & iii
14. **Which of the following co-valent compound dissolve in water?**
    ⓐ Ethene ⓑ Carbondioxide
    ⓒ Benzene ⓓ Acetylene
15. **$CH_2 = CH - Cl$ is the monomer of which polymer?**
    ⓐ Nylon ⓑ Rubber
    ⓒ PVC ⓓ Poly styrene
16. **Two elements A and B of atomic number 15 and 17, They form compound AB_5 Which decomposed in the following way-$AB_5 \longrightarrow B_2 + AB_3$, In the reaction—**
    i. A having two lone pair electron in AB_3
    ii. reactant AB_5 is reduced
    iii. B_2 gives exothermic reaction with natural gas
    Which one is correct?
    ⓐ i & ii ⓑ i & iii
    ⓒ ii & iii ⓓ i, ii & iii
17. **What is the bond energy of H-Cl bond?**
    ⓐ 498kJ ⓑ 464 kJ
    ⓒ 326 kJ ⓓ 431 kJ

18. Which of the following is the constituent of Bronze?
ⓐ Copper ⓑ Silver
ⓒ Zinc ⓓ Nickel

19. Emperical formula of a compound is XY_2, relative atomic mass of X is 14 and Y is 16 and molecular mass compound is 92, What is the molecular formula of the compound?
ⓐ XY_4 ⓑ X_2Y_4
ⓒ XY_2 ⓓ X_3Y_6

20. What is the formula of gypsum?
ⓐ $(CaSO_4)_2.H_2O$ ⓑ $CaSO_4.H_2O$
ⓒ $CaSO_4.2H_2O$ ⓓ $CaSO_4.H_2O$



21. Above curve is applicable for which of the following reaction?
ⓐ $C + O_2 \rightarrow CO_2$
ⓑ $HCl + NaOH \rightarrow NaCl + H_2O$
ⓒ $CH_4 + O_2 \rightarrow CO_2 + H_2O$
ⓓ $N_2 + O_2 \rightarrow 2NO$

22. What is the boiling point of ethanol–
ⓐ 58°C ⓑ 68°C
ⓒ 78°C ⓓ 88°C

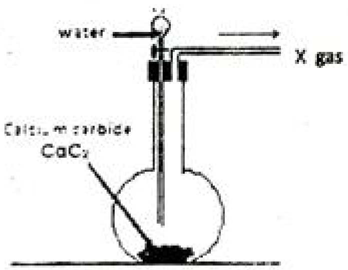
23. $_{16}A - He^{++}$ (alpha ray) $\longrightarrow$ Z, The element 'Z' —
i. form covalent bond with halogen
ii. Oxide of 'Z' exist gaseous state
iii. form acidic oxide
Which one is correct?
ⓐ i & ii ⓑ i & iii
ⓒ ii & iii ⓓ i, ii & iii

24. Which one of the following reaction is non-Redox reaction?
ⓐ $H_2 + I_2 = 2HI$
ⓑ $Pb + S = PbS$
ⓒ $NaOH + HCl = NaCl + H_2O$
ⓓ $SO_2 + O_2 = 2SO_3$

25. Which element doesn't follow octet rule during the formation of compound?
ⓐ Sodium ⓑ Magnesium
ⓒ Berylium ⓓ Calcium

26. What is the acceptance level of arsenic for human body?
ⓐ 0.01 ppm ⓑ 0.03 ppm
ⓒ 0.05ppm ⓓ 0.08 ppm

27. What is the volume of 14 gram nitrogen at STP?
ⓐ 22.4L ⓑ 11.2L
ⓒ 22400ml ⓓ 2200ml



Based on above stem, answer to the question No-28 and 29.

28. What type of reaction occurs in the above process?
ⓐ Displacement reaction
ⓑ Redox reaction
ⓒ Hydrolysis reaction
ⓓ Decomposition reaction

29. The compound 'X'?
i. can decolourizes Br_2 solution
ii. Present composition of Carbon is 92.30%
iii. Can be produced from methane
Which one is correct?
ⓐ i & ii ⓑ i & iii
ⓒ ii & iii ⓓ i, ii & iii

30. How much gram HCl will be required to neutralize completely 14.5 gram Na_2CO_3?
ⓐ 53g ⓑ 36.5g
ⓒ 12.5g ⓓ 9.98g

31. What is the composition of rectified spirit?
ⓐ 94% C_2H_5OH & 5% H_2O
ⓑ 96% C_2H_5OH & 4% H_2O
ⓒ 97% C_2H_5OH & 3% H_2O
ⓓ 98% C_2H_5OH & 2% H_2O

32. Isotope of which element is used to set pacemaker in heart?
ⓐ Technetium ⓑ Proactinium
ⓒ Gamarium ⓓ Plutonium

33. Which of the following compound has no Vander Waals force at all?
ⓐ NH_3 ⓑ H_2O
ⓒ C_2H_5OH ⓓ SiO_2

34. The compound form by the two elements of atomic number 3 and 9 is— ?
i. high meltig point
ii. conduct electricity in solid state
iii. Soluble in water
Which one is correct?
ⓐ i & ii ⓑ i & iii
ⓒ ii & iii ⓓ i, ii & iii

35. Which of the following element is producing in the sun?
ⓐ Hydrogen ⓑ Helium
ⓒ Oxygen ⓓ Chlorine

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	1	ⓒ	2	ⓑ	3	ⓐ	4	ⓑ	5	ⓑ	6	ⓓ	7	ⓒ	8	ⓓ	9	ⓐ	10	ⓐ	11	ⓐ	12	ⓓ	13	ⓓ	14	ⓑ	15	ⓒ	16	ⓒ	17	ⓓ	18	ⓐ	19	ⓑ	20	ⓒ
	21	ⓓ	22	ⓒ	23	ⓑ	24	ⓒ	25	ⓒ	26	ⓐ	27	ⓑ	28	ⓒ	29	ⓐ	30	ⓓ	31	ⓑ	32	ⓓ	33	ⓐ	34	ⓑ	35	ⓑ										