Shri Shantadurga Higher Secondary School, Bicholim-Goa.

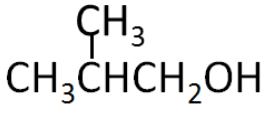
Class: - XI Science **Max Marks:- 55**

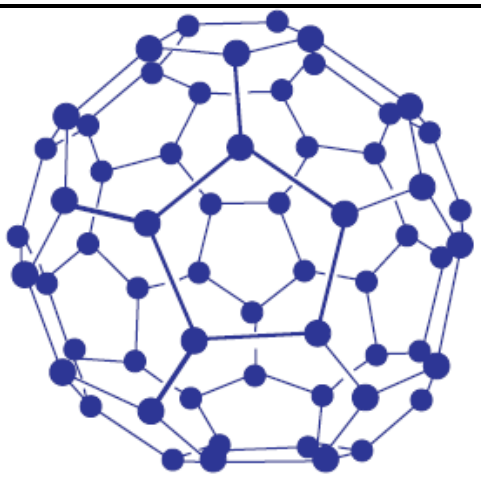
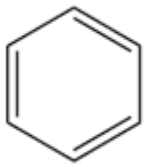
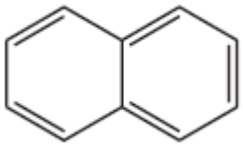
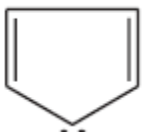
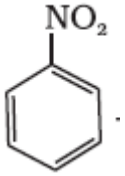
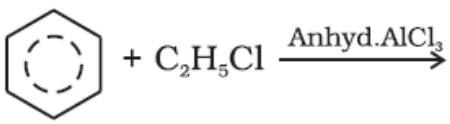
Day: – Wednesday **(Subject:-Chemistry)** **Date:- 29-03-2017**

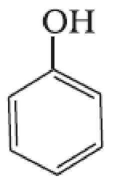
Time: - 9.00 am. TO 11.30 am. **Duration: - 2 $\frac{1}{2}$ Hours**

Total No of Questions: -5 **Second Terminal Examination- March 2017** **Total No of Printed pages: 4**

Q No	***INSTRUCTIONS:***	Marks
	(1) All questions are compulsory. *(2) Answer each main question on a fresh page.* *(3) Figures to the right-indicate full marks.* *(4) Use of calculators is not permitted, however mathematical tables will be provided on request.* *(5) In case of Multiple choice question, complete the statement by choosing the correct alternative from those given below the statement and rewrite the completed statement:* *Atomic masses & Constants:-H=1,S=32,N=14,O=16 , N_A=6.023×10²³*	
Q 1 A	A mixture of acetic acid and sodium acetate acts as_____solution. # Acidic buffer # Basic buffer # Neutral buffer # Ionic buffer	**1**
Q 1 B	Answer the following a) State the law of chemical equilibrium. b) Write one point of difference between Homogenous and Heterogeneous equilibrium. c) What is a conjugate acid-base pair?	**3**
Q 1 C	Answer the following 1. Write the expression for the equilibrium constant, *Kc* for the following reaction: $2NOCl\ (g) \rightarrow 2NO\ (g) + Cl_2\ (g)$ 2. For the equilibrium system described by $2\ SO_{2\ (g)} + O_{2\ (g)} \rightarrow 2\ SO_{3\ (g)}$ at a particular temperature the equilibrium concentrations of SO_2, O_2 and SO_3 were 0.75 M, 0.30 M, and 0.15 M, respectively. Calculate the equilibrium constant, K_c, for the reaction. 3. Write the expression for solubility product for the following **$K_3\ PO_4$**	**3**
Q 1 D	Answer the following questions. 1. Name the salts present in temporary hard water and permanent hard water. 2. Write a chemical equation showing laboratory method for preparation of Dihydrogen gas	**2**

Q 1 E	Write the formula and one use of the following 1. Heavy water 2. Hydrogen peroxide	**2**
Q 2 A	The saline Hydride from the following is _____ # H_2O # $VH_{0.56}$ # BeH_2 # CH_4	**1**
Q 2 B	Answer the following. a) Determine the Oxidation number of the underlined element in following compounds 1. $K\underline{Mn}O_4$ 2. $\underline{S_2}O_3^{2-}$ b) Write a note on Green Chemistry. c) What is Acid rain and how it is caused?	**3**
Q 2 C	Answer the following. 1) Using the standard electrode potentials given below, predict if the reaction between the following is feasible or not **$Fe + Cd^{2+} \rightarrow Cd + Fe^{2+}$** $E^0 (Cd^{2+}/ Cd) = -0.44$ V and $E^0 (Fe^{2+}/ Fe) = -0.74$ V 2) Identify the Oxidising and Reducing agent in the following reaction. $3CuO + 2NH_3 \rightarrow 3Cu + N_2 + 2H_2O$ 3) Write the Oxidation and Reduction half-cell reaction for the following cell **$Al \mid Al^{3+}_{(1M)} \parallel Cu^{2+}_{(1M)} \mid Cu$**	**3**
Q 2 D	Define the following 1) Oxidation 2) Reduction 3) Oxidising agent 4) Reducing agent	**2**
Q 2 E	Answer the following. I. Write two functions of salt bridge II. Write the IUPAC names for the following compounds. a.  b. $CH_3CH_2CH_2NH_2$	**2**
Q 3 A	The general electronic configuration of the outermost orbit in the case of alkaline earth metal is:_____ # **ns^2np^1** # **ns^2** # **ns^2np^2** # **ns^1**	**1**
Q 3 B	Answer the following. 1. Look at the structure shown below and answer the questions	**3**

	 1.Name this structure 2. Number of six membered rings present in it. 3.Type of Hybridization that carbon atom has undergone 4. How it is prepared. 2. Name some important compounds of silicon	
Q 3 C	Answer the following. 1. Write any four points of difference between Diamond & Graphite. 2. Draw the structure of Diborane	**3**
Q 3 D	Write any four points of similarities between lithium & Magnesium.	**2**
Q 3 E	Comment on following properties with respect to Alkaline earth metals 1. Ionization enthalpy 2. Atomic and ionic radii. **OR**	**2**
Q 3 E	Give reason for the following (i) The hydroxides of alkali metals are strong bases. (ii) Be and Mg does not give colour to the flame whereas other alkaline earth metals do so.	
Q 4 A	The compound which does not obey Huckel rule is _____  #  #  #  #	**1**
Q 4 B	Explain the following name reactions with equation a) Wurtz Reaction b) Pyrolysis c) Polymerisation Reaction	**3**
Q 4 C	Complete the following chemical equations by replacing A,B,C,D,X and Y  (i) A + B	**3**

	 + Zn $\xrightarrow{\triangle}$ (ii) ______C______ + ______D______ **(iii)** _____x________+ 6 Cl_2 $\xrightarrow[\text{dark, cold}]{\text{Anhyd. } AlCl_3}$ _____y_______+ Hcl	
Q 4 D	Write chemical equations showing how you will carry out following conversions. 1) Ethyne to Benzene 2) Benzene to Nitrobenzene	**2**
Q 4 E	Draw the following 1) Draw the Sawhorse projection formulae of ethane in staggered and eclipsed forms. 2) Geometrical isomers of Hex-2-ene	**2**
Q 5 A	____________orbital of the following is an incorrect orbital notation. **# 2s # 2p # 3f # 3d**	**1**
Q 5 B	Answer the following **(i)** Draw the orbital diagrams for O and Si. How many unpaired electrons are in each of these? (ii) For the principle quantum no**. n = 4**; How many types of orbitals are there? How many electrons can be accommodated in the complete principle shell?	**3**
Q 5 C	Write the IUPAC names for the following compounds 1. CH_3-CHO 2. CH $_3COCH_3$ 3. CH_3-CH(CH$_3$)-CH(Br)-CH_3 **OR**	**3**
Q 5 C	Write the structures for the following compounds by rewriting their IUPAC names I. Pent-4-en-2-ol II. 2-Chloro-4-methylpentane III. 2-Bromobutane	**3**
Q 5 D	Deduce the Hybridization of Boron in BF_3	**2**
Q 5 E	A gas tanker carries helium gas at a pressure of 2.5 atmospheres at 25^{o}C.The tanker can withstand a maximum pressure of 10 atmospheres. It collides with a truck and catches fire. According to the above information the tanker will blow up after the collision or it will catch fire. Explain. (**Melting point of iron - 1535^{o}C**)	**2**

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