Shri Shantadurga Higher Secondary School, Bicholim-Goa.

Final Examination March-2019

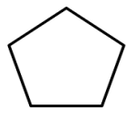
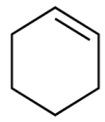
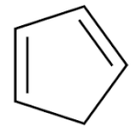
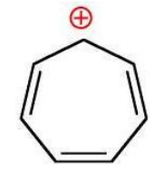
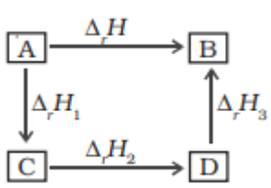
Std: XI Science **Max Marks: 55**

Date: 25/03/2019 **Chemistry** **Duration: 150 Minutes**

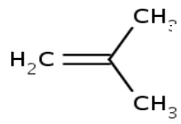
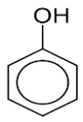
Instructions:-

*1. All questions are compulsory; however question **23, 26**, and **27** has internal choice.*
*2. Use of **calculator** is **not permitted**, however logarithmic table will be provided on request.*
3. Every Question should be attempted only once.

Section-A consists of 9 questions of 1 mark each.
Section-B consists of 10 questions of 2 marks each.
Section-C consists of 6 questions of 3 marks each.
Section-D consists of 2 questions of 4 marks each.

	Section-A	
Q.1.	Amongst the following properties, _____ is not an extensive property. # Mass # Volume # Temperature # Enthalpy	(1)
Q.2	The solutions which resist change in pH on dilution or with the addition of small amounts of acid or alkali are called _____ Solutions. # Neutral # Alkaline # Buffer # Acidic	(1)
Q.3.	The standard EMF (E^0Cell) for the electrochemical cell set up, using following electrodes with electrodes potential: **E^0 Ag^+/Ag = 0.80v** **E^0 Zn^{2+}/Zn = -0.76v** is ____ # 0.04V # 1.56V # -1.56V # -0.04V	(1)
Q.4.	Among the alkali metal ions, the metal ion with the highest hydration enthalpy is_____ # Na^+ # Li^+ # Rb^+ # Cs^+	(1)
Q.5.	The compound that exhibits huckel rule among the following is _____ #  #  #  # 	(1)
Q.6.	Draw the Energy level diagram (Enthalpy change) for Exothermic reaction and write the expression for Enthalpy change.	(1)
Q.7	Draw the pH Scale and label Acidic, Basic and Neutral.	(1)
Q.8	Draw and name any two conformations of Ethane using Newmann projection.	(1)
Q.9	Write electronic configuration of **Cr (Z= 24)**	(1)
	Section-B	(2)
Q.10	Answer the following questions based on the reaction given below: **$CuSO_4$ + Zn ⟶ $ZnS0_4$ + Cu** 1) Write the cathode and anode reactions. 2) Identify and write reducing agent and oxidising agent.	(2)
Q.11	With respect to the **group I** elements, write the following: 1) General electronic configuration. 2) Trend in Atomic radii	(2)
Q.12	Name and state the law represented by following equation.  Also write the mathematical expression for the same law.	(2)

Q.13	Write any four points on important features of equilibrium constants.	(2)
Q.14	Calculate the oxidation numbers of underlined elements in the following compounds and ions : **i) $H_2\underline{S}O_4$ ii)$K\underline{Mn}O_4$ iii) $(\underline{P}O_4)^{3-}$ iv) $(H\underline{S}O_4)^-$**	(2)
Q.15	Draw a neat labelled diagram of Daniel cell and state one use of salt bridge.	(2)
Q.16.	Write the commercial method of preparation of quicklime and state its two uses.	(2)
Q.17.	Complete the following equations: i) $2Al\ (s) + 2\ NaOH\ (aq) + 6\ H_2O\ (l) \rightarrow$ **A + B** ii) $Sn + 2H_2O \xrightarrow{\Delta}$ **A + B**	(2)
Q.18	At 30°C and 780mm of Hg pressure, a gas occupies 500ml volume. What will be its pressure at a height where temperature is 20°C and volume of a gas is 660ml?	(2)
Q.19	Explain the **sp^3d hybridisation** with respect to formation of Phosphorus pentachloride and comment on its **geometry**.	(2)
	Section-C	
Q.20	Write the IUPAC nomenclature for the following compounds: (i) $CH_3-\underset{\underset{OH}{|}}{CH}-CH_2-Br$ (ii) $CH_3-CH_2-\underset{\underset{O}{\|}}{C}-CH_3$ (iii) $CH_3-\underset{\underset{O}{\|}}{C}-H$	(3)
Q.21	Answer the following : (i) Arrange the following organic compounds in increasing order of their boiling point ; 2-methyl pentane, Hexane, 2,3-dimethyl butane (ii) Write the complete chemical equation and name and label major and minor products in hydro halogenation of propene. (iii) Illustrate Wurtz reaction with complete chemical reaction.	(3)
Q.22	State the following. 1. Closed system. 2. Standard enthalpy of formation 3. Standard enthalpy of Vaporization.	(3)
Q.23	Write a point of difference between Homogenous and Heterogeneous equilibria and calculate Molar Concentration of NO (given Kc for the following reaction= 0.622) $N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$ Given equilibrium concentrations of **N_2**=3.0×10^{-3}M, **O_2** = 4.2×10^{-3}M in a sealed vessel at 800K **OR**	(3)
Q.23	For the equilibrium system described by: $PCl_{5\,(g)} \rightleftharpoons PCl_{3\,(g)} + Cl_{2\,(g)}$ K_{eq} equals 35 at 487°C. If the concentrations of the PCl_5 and PCl_3 are 0.015 M and 0.78 M, respectively, what is the concentration of the Cl_2?	

Q.24	Write the complete labelled chemical equation to carry out the following conversions (i) But-2-yne to trans-But-2-ene (i) Benzene to Nitrobenzene (ii) Propyne to Propene	(3)
Q.25	Answer the following; (i) Draw the shape of Py orbital. (ii) State Hund's rule of maximum multiplicity. (iii) What are the values of Azimuthal quantum numbers (l) for 3p orbitals?	(3)
	Section-D	
Q.26	With respect to group 13 elements answer the following questions; (i) Why is boric acid considered as a weak acid? (ii) Draw the dimeric structure of $AlCl_3$ (iii) Write a balanced chemical equation for the reaction of elemental boron with chlorine at high temperature. (iv) Write a chemical formula of Borax and Orthoboric acid. **OR**	(4)
Q.26	With respect to group 14 elements answer the following questions; (i) Why does carbon shows anomalous behaviour? (ii) Draw the structure of a SiO_2 (iii) Name the zeolite that is used for direct conversion of alcohol to gasoline. (iv) How fullerenes are prepared?	(4)
Q.27	Write complete reaction for the following: (i) $CH_4 + H_2O \longrightarrow A + B$ (ii)  $+ H_2SO_4 \xrightarrow{SO_3 \text{ fumes}} A + B$ (iii) $HC \equiv CH + Na \longrightarrow A + B$ (iv)  $+ Cl_2 \xrightarrow{\text{Anhydrous. } AlCl_3} A + B$ **OR**	(4)
Q.27	Write complete reaction for the following: (i)  $+ CH_3-CH_2-Cl \xrightarrow{\text{Anhy. } AlCl_3} A + B$ (ii) $Br-CH_2-CH_2-Br \xrightarrow{Zn} A + B$ (iii)  $+ O_3 \longrightarrow A \xrightarrow{Zn/H_2O} B$ (iv)  $+ Zn \longrightarrow A + B$	(4)
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