

INTERNATIONAL INDIAN SCHOOL RIYADH

First term examination 2013-2014

Class XI  
Sub Chemistry

SET B

Time 3hrs  
Maxmarks 70

General instructions

1. Questions 1 to 5 are very short answer questions carrying one mark each
2. Questions 6 to 10 are short answer questions carrying two marks each
3. Questions 11 to 22 are short answer questions carrying three marks each
4. Question 23 is a value based question carrying four marks
5. Questions 24 to 26 are long answer questions carrying five marks each
6. There is no overall choice for questions. However internal choices have been provided for one twomarkquestion ,one three mark question and for all questions carrying five marks
7. Use of calculation is not allowed .However log tables can be used if necessary.

1. Define hydrogen bond

2. What physical meaning is attributed to the square of the absolute value of electron wave function?

3 .State Dalions law of partial pressures

4. Give the values of temperature and pressure at STP

5. Arrange in the increasing order of nonmetallic character.

Si ,B ,C,N,F

6.a) Explain the term diagonal relation ship taking a suitable example

b) Predict the group and period to which the following element belongs  
 $(n-1)d^4 ns^2$  for  $n = 4$

7. Chlorophyll present in green leaves of plants absorbs light at  $4.620 \times 10^{14}$  Hz  
Calculate the wavelength of radiation in nanometer

8. Determine the empirical formula of an oxide of iron which has 69.9% iron and 30.1% dioxygen by mass.

OR

How many grams of HCl are required to prepare 4 litre of 5 M HCl in water?

9. Give reason a).Automobile tyres are inflated to lesser pressures in summer than in winter.

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b) Falling liquid droplets are spherical in shape

10. In  $\text{NH}_3$  and  $\text{H}_2\text{O}$  the central atoms are in  $\text{sp}^3$  hybridised state yet they differ each other in their bond angles. Explain why?

11. Table tennis ball has a mass 10g and a speed of  $90 \text{ ms}^{-1}$ . If speed can be measured within an accuracy of 4% what will be the uncertainty in speed and position?.

OR

The mass of an electron is  $9.1 \times 10^{-31} \text{ kg}$ . If its KE is  $3 \times 10^{-25} \text{ J}$ , calculate its wavelength ( $h = 6.626 \times 10^{-34} \text{ Js}$ )

12 a) State Pauli exclusion principle.

b) Why is De-Broglie's relationship meaningful for submicroscopic particles such as electrons, protons and atoms and not for macroscopic objects?

c) The number of electrons, protons and neutrons in a species are equal to 18, 16 and 16 respectively. Assign the proper symbol to the species.

13. Write the electronic configuration of copper ( $z = 29$ ) and write

a) the number of unpaired electron in it.

b) the number of electrons having  $n + l = 3$

14 Why is line spectrum of an element known as fingerprint of its atoms?  
Which series of hydrogen spectrum lies in the visible region?

b) What were the shortcomings of Rutherford's model of atom?

15.a) Define limiting reagent

b) How are 0.5 mol of  $\text{Na}_2\text{CO}_3$  and 0.5 M  $\text{Na}_2\text{CO}_3$  different?

c) How many significant figures are present in the following?

i) 0.0034

ii) 500.00

16) How does molecular orbital theory account for the following

a) Bond order of  $\text{N}_2$  is greater than  $\text{N}_2^+$

b)  $\text{O}_2$  is paramagnetic but  $\text{O}_2^{2-}$  is diamagnetic

17. Chlorine is prepared in the lab by treating manganese dioxide ( $\text{MnO}_2$ ) with aqueous hydrochloric acid according to the equation



