CBSE-2003 CLASS XII CHEMISTRY

General Instructions:

1. All questions are compulsory.
2. Marks for each question are indicated against it.
3. Question numbers **1** to **10** are very short-answer questions each of **1 mark**. Answer them hi about one sentence each.
4. Question numbers **11** to **26** are short-answer questions of **2 marks** each. Answer them in not more than 30 words each.
5. Question numbers **27** to **32** are short-answer questions of **3 marks** each. Answer them in not more than 40 words each.
6. Question numbers **33** and **34** are long-answer questions of **5 marks** each. Answer them in not more than 70 words each.
7. Use Log Tables, If necessary.

Note: Except for the following questions, all the remaining questions have been asked in Set I .

Q. 1. Write the composition of double-base propellant. **1**

Q. 2. What is meant by inversion of sugar? **1**

Q. 9. Name the radio active series which starts from Plutonium -241 and terminates at Bismuth-209. **1**

Q. 10. Write a neutral molecule in which the central atom is sp^3d^2 sp hybridized. **1**

Q. 13. What is meant by specific conductivity of a solution?
The specific conductance of a 0.12 N solution of an electrolyte is 2.4×10^{-2} S cm^{-1} .
Calculate its equivalent conductance. **2**

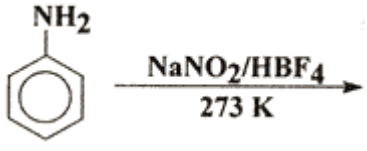
Q. 20. Write equations for the synthesis of the following: **2**
(i) Glyptal
(ii) Neoprene

Q. 25. Illustrate the following with an example of reaction: **2**
(i) Ambident nucleophile
(ii) Hinsberg test

Q. 27. Give appropriate reason for each of the following observations: **3**
(i) Only higher members of Group 18 of the periodic table are expected to form compounds.
(ii) Fluorine is a stronger oxidising agent than chlorine, though fluorine has lower electron affinity than chlorine.
(ii) NO_2 readily forms a dimer, whereas ClO_2 does not.

Q. 28. Complete the following reactions: **3**

(i) $CH_3 - CH - CH_3 + PCl_5 \rightarrow$

(ii) 

(iii) $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}} - X + NaOH \rightarrow$

Q. 29. What is meant by Vant's Hoff factor?
The osmotic pressure of a 0.0103 molar solution of an electrolyte is found to be 0.70 atm at 27^0 C. Calculate the Van't Hoff factor.
[R = 0.082 L atm-mol $^{-1}$ K $^{-1}$]
What conclusion do you draw about the molecular state of the solute in the solution?

Q. 32. Explain what is meant by dual nature of a particle in motion.
Show that the wavelength of a moving particle is related to its kinetic energy (E) as

$$\lambda = \frac{h}{(2mE)^{1/2}}.$$