B.Sc. I Sem.

NEP-1026

B.Sc. Examination, December–2021

Major Course (Under N.E.P.)

CHEMISTRY

Fundamentals of Chemistry

Paper Code : B020101T

Time : 3 Hours] *[Maximum Marks : 75*

Note : Attempt ***all*** the sections as per instructions.

Section–A

(Very Short Answer Questions)

Note : Attempt **all** five questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. 5×3=15

1. Explain Fajan's rule with one example.

2. H_2O is liquid whereas H_2S is a gas. Justify.

3. Explain charge transfer complex.

4. What is a binary number system?

5. What is permutation?

Section–B

(Short Answer Questions)

Note : Attempt any *two* questions out of the following three questions. Each question carries 7.5 marks. Short Answer is required not exceeding 200 words. 2×7.5=15

6. What is hydrogen bonding? Explain the types of hydrogen bonding.

7. What are carbocations? How do you account for the relative stability of $\overset{\circ}{1}$, $\overset{\circ}{2}$ and $\overset{\circ}{3}$ carbocations?

8. What are the different components of a Computer? Define the term bit and byte.

Section–C

(Descriptive Answer Questions)

Note : Attempt any ***three*** questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. 3×15=45

9. What is isomerism? Explain different types of isomerism with examples of each.

10. What is an operating system? Discuss the features of DOS and WINDOWS.

11. What is hybridization? Explain the structure of water molecule. Calculate the bond order of O_2 and CO.

12. Write short note on following :

(a) Inclusion compound

(b) No bond resonance

(c) Slater rule

13. Discuss different logarithmic relations. Differentiate the following functions with respect to x :

(a) x^7

(b) $\sqrt{x}$

(c) $\frac{1}{x}$