

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)  
Chromepet, Chennai — 600 044.

B.Sc.(Physics) END SEMESTER EXAMINATIONS NOVEMBER -2023  
SEMESTER - I

**22UPHAT1001 - Chemistry for Physics I**

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

**Section B**

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. List out the general rules to be followed in storage and handling of chemicals.
2. Define the following (i) Molarity (ii) Molality (iii) ppm.
3. Define buffer solutions? Derive Henderson-Hasselbalche equation and write its significance.
4. Describe the requisites of a good fuel? Write down the different types of fuels.
5. Explain the structure of NaCl. Write the characteristics of ionic compounds.
6. Highlight the importance and preparation of primary and secondary standards.
7. Explain the following:  
(i) EMF (ii) Standard electrode potential (iii) Reference electrode.
8. Write about (i) Octane number (ii) TEL (iii) CNG

**Section C**

Answer any **THREE** questions ( $3 \times 10 = 30$  Marks)

9. (a) Explain the principle of thin layer chromatography. How is it performed?  
(b) Describe with a diagram, how a substance can be purified by steam distillation.
10. (a) Predict the hybridization of (i)  $CH_4$  (ii)  $C_2H_4$   
(b) Discuss about the types and importance of hydrogen bonding.
11. Explain the classification of different types of acid-base titrations and their principle.
12. What are primary and secondary batteries ? Explain in detail about any two types of batteries.
13. (a) Differentiate between nuclear fission and fusion reactions. (5+5)  
(b) Highlight the uses of radioisotopes in our life.

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