



21100729

QP CODE: 21100729

Reg No :

Name :

B.Voc Degree Examination, MARCH 2021

First Semester

B.Voc Food Technology and Analysis

BOVG101 - BASIC THEORETICAL AND ANALYTICAL CHEMISTRY

2018 Admission Onwards

AE53AB44

Time: 3 Hours

Max. Marks : 80

Part A

*Answer any **ten** questions.*

Each question carries 2 marks.

1. What are stationary states?
2. Give de Broglie equation and explain the terms.
3. How electrical conductivity is for an ionic compound?
4. Arrange the following sets of ions in the decreasing order of their sizes. (a) Al^{3+} , Mg^{2+} , Na^+ , O^{2-} , F^- (b) Na^+ , Mg^{2+} , K^+
5. Explain the mole concept.
6. Explain the purification of common salt in terms of common ion effect.
7. State and explain the first law of thermodynamics.
8. Estimate the change in entropy accompanying the vaporization of one mole of ether. The heat of vaporization of ether is 27.2 kJ/mol and its boiling point is 308 K.
9. State and explain the third law of thermodynamics.
10. Define indicators. Give examples.
11. What are random errors?
12. Explain the principle of differential migration.

(10×2=20)

Part B

*Answer any **six** questions.*

Each question carries 5 marks.





13. Write short notes on: (a) Azimuthal quantum number (l), and (b) Magnetic quantum number (ml)
14. Analyse the different effects of hydrogen bonding.
15. Define molarity. Calculate molarity of sodium carbonate solution prepared by dissolving 0.53 g of pure anhydrous Na_2CO_3 in 500 ml of distilled water.
16. Organize the concept of Conjugate acid-base pairs with examples.
17. Explain dissociation constant of bases and express it in terms of concentration and hydroxyl ion concentration.
18. Depending on the nature of the boundary, classify thermodynamic systems with examples.
19. Clarify the statement 'the entropy of the universe is increasing continuously'. Give the physical significance of entropy.
20. Write a short note on the filtration techniques.
21. Briefly explain solvent extraction.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. Analyse the different types of hybridisation and structures of ethane, ethene and acetylene.
23. Write an essay on free energy of a reaction and explain the physical significance of it.
24. Write a short essay on laboratory safety and laboratory first aids.
25. Write an essay on (a) Column Chromatography (b) HPLC

(2×15=30)

