

**UG-351**

**BCHE-12**

**B.Sc. DEGREE EXAMINATION –  
DECEMBER 2019.**

**First Year**

**Chemistry**

**Paper – 2 : GENERAL CHEMISTRY – II**

**Time : 3 hours**

**Maximum marks : 75**

**PART A — (3 × 5 = 15 marks)**

**Answer any THREE questions out of Five.**

1. (a) Predict the hybridisation and structure of  $\text{BF}_3$  and  $\text{PCl}_5$ . (3)  
(b) State Aufbau principle. (2)
2. Discuss the following reactions with suitable examples. (5)  
(a) Cope elimination  
(b) Stobbe condensation reaction.
3. (a) What are cohesive forces? (2)  
(b) Give any three properties of liquid crystals. (3)

4. Write a short note on (a) superphosphate  
(b) petroleum. (5)
5. Give the reaction for following conversion. (5)
- (a) dimethylacetylene to 2-butene
- (b) alkene to epoxide

PART B — ( $4 \times 15 = 60$  marks)

Answer any FOUR questions out of Five.

6. (a) Draw the molecular orbital diagram for  $O_2$ ,  $O_2^+$  and  $O_2^-$  and calculate their bond order values. (9)
- (b) Discuss about VSEPR theory. (6)
7. Write a note on the following organic reaction. (15)
- (a) Wittig reaction,
- (b) Hofmann degradation,
- (c) Benzoin condensation
- (d) Chugaev reaction,
- (e) 1,3 – dipolar addition reaction.

8. (a) Write a note on the classification of liquid crystals. (8)
- (b) Discuss the significance of Trouton's rule. (4)
- (c) Explain the effect of temperature on viscosity of gas. (3)
9. (a) Discuss in detail about the role of various elements involved in plant growth. (9)
- (b) Give the industrial method for the preparation of Urea and its uses. (6)
10. (a) Write a note on Markovnikov's and anti-Markovnikov's addition of hydrogen halides to alkenes and give the mechanism. (10)
- (b) Discuss the stability of primary, secondary and tertiary carbocations. (5)
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**UG-352**

**BCHEA-01**

**B.Sc. DEGREE EXAMINATION —  
DECEMBER, 2019.**

**First Year**

**Chemistry**

**GENERAL PHYSICS**

**Time : 3 hours**

**Maximum marks : 75**

**PART A — (3 × 5 = 15 marks)**

**Answer any THREE questions out of Five.**

1. State the conditions for good acoustics of buildings.
2. State the laws of thermodynamics.
3. Note down the applications of Raman effects.
4. State the laws of electromagnetic induction.
5. Illustrate the basic principles of FET.

PART B — ( $4 \times 15 = 60$  marks)

Answer any FOUR questions.

6. (a) State and explain Kepler's laws of planetary Motion.

Or

- (b) Determine the centre of gravity of a solid hemisphere and solid cone.

7. (a) State Hooke's law. Define and explain three moduli.

Or

- (b) Describe the experiment to determine the young's modulus of a bar by non-uniform bending.

8. (a) Obtain an expression for energy of a capacitor.

Or

- (b) Explain Raman effect and its applications.

9. (a) Describe Carey Foster's bridge with neat circuit diagram.

Or

- (b) State the laws of electromagnetic induction. Write a note of self and mutual induction coils.

10. (a) Explain Zener diode characteristics study.

Or

(b) Explain the principles of light emitting diode.

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UG – 350

BCHE-11

B.Sc. DEGREE EXAMINATION —  
DECEMBER, 2019.

First Year

Chemistry

GENERAL CHEMISTRY -I

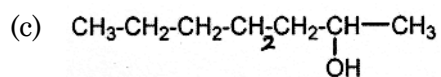
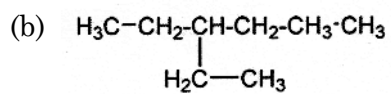
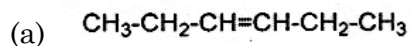
Time : 3 hours

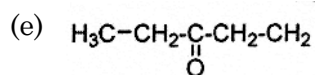
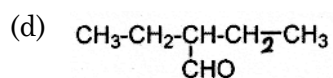
Maximum marks : 75

PART A — (3 × 5 = 15 marks)

Answer any THREE questions

1. Give IUPAC name for the following organic compounds





2. (a) Write the structure of the following compounds
- (i) 1-aminopropan-2-ol
  - (ii) 2-Methylthiophene
- (b) What are the conditions for the resonance?
3. Write short notes on rows and periods in the periodic table.
4. What is polarizing power and polarizability of atoms?
5. Write short notes on viscosity and surface tension.

PART B — (4 × 15 = 60 marks)

Answer any FOUR questions.

6. (a) How the organic compounds classified based on the C and H atoms?
- (b) State the IUPAC rules for naming aliphatic compound containing aldehydes and acids.
7. Write short notes on the followings
- (a) Resonance effect
  - (b) Hyperconjugation
  - (c) Steric effect



8. Give an account for the followings
- (a) Atomic radii
  - (b) Bond angle
  - (c) Bond length
9. (a) What are the factors that favoring the ionic compounds?
- (b) Explain London forces and van-der Waals forces.
10. Write short notes on Liquid crystals and its applications.
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