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B.Sc. (Part-III) Examination, 2022**CHEMISTRY****Third Paper****(Physical Chemistry)***Time : Three Hours] [Maximum Marks : 75***Note :** Attempt questions from **all** sections as per instructions.**Section - A****(Very Short Answer Type Questions)****Note :** Attempt **all** parts of this question. Give answer of each part in about 50 words. $1\frac{1}{2} \times 10 = 15$

1. (a) What is Compton effect?
- (b) Explain de-Broglie's hypothesis.
- (c) Define degree of freedom.

P.T.O.

(2)

- (d) Explain electromagnetic radiation.
- (e) What is specific rotation?
- (f) Define atomic orbital
- (g) What is Frank-Condon Principle?
- (h) What is Grotthus-Draper law?
- (i) What is chemiluminescence?
- (j) Describe difference between ideal and non-ideal solution.

Section - B**(Short Answer Type Questions)****Note :** Attempt **all** questions. Give answer of each question in about 200 words. $6 \times 5 = 30$

2. What is Wein's displacement law?

OR

What is Planck's radiation law?

3. Discuss Born-Oppenheimer approximation shortly.

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(3)
OR

What is dipole moment? What information dipole moment give about the structure of molecule.

4. What do you understand by eigen values and eigen functions?

OR

Explain selection rules in spectroscopy.

5. Write short notes on colligative properties.

OR

Define Photochemistry. What are photophysical and photochemical reactions.

6. Write short notes on degree of Association.

OR

Give interpretation of Ferromagnetic behaviour.

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P.T.O.

(4)
Section - C

(Long Answer Type Questions)

Note : Attempt any two questions. Give answer of each question in about 500 words. $2 \times 15 = 30$

7. Discuss photoelectric effect.
8. Discuss the relation between optical activity and molecular structure.
9. What are magnetic properties of substances? How would you classify magnetic substances? Describe the properties of classified group.
10. Derive Schrodinger's wave equation for Hydrogen atom.
11. Write the law of Photochemistry.

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