R.K. Science (P.G.) College, Kalwar, Jaipur

CHEMISTRY SEM.- VI FLP-I

Sec. A: Attempt all 10 questions. Each question carries a mark weight of 2.

1. Give two important aspects of magnesium metal. 2. Give three functions of calcium. What is Cytochrome C

4 What are carbon metallic compounds? Give two methods of preparing carbon metallic compounds. 5. What are Phospha Genes Definition Give 6 What are heterocyclic compounds 7 Write two methods of preparation of pyrrole 8 What is spectroscopy

9 What is Raman spectroscopy 10 Define Crompton effect

Choose any 4 questions, choosing 1 question from each unit. Each question carries 15 marks.

UNIT-I

1. Write a note on the following: a. What is the sodium potassium pump? Explain its importance. b. Explain the importance of calcium and magnesium in the biological system. c. Explain cytochrome C and its functions. d. What are the elements useful in our lives? Name the elements that are essential in small and large quantities

Or

What do you understand by phosphazene? Describe its structure and explain its synthesis process. State its chemical properties.

UNIT-II

1a Describe the mechanism of two methods of synthesis of quinoline.

How will you obtain the following from quinoline: 1.3 Bromoquinoline, 22 Chloroquinoline, 33 hydrozoquinola

Or

Write a short note on the following

1 Bisler Napier Loss's Synthesis, 2 Modeling Synthesis, 3 Scarf Synthesis

UNIT-III

1. Discuss the theory of Raman spectroscopy.

Or

2 Explain what is a simple dynamic harmonic helix?

UNIT-IV

1. Explain the Krypton effect. Explain the experimental verification of this effect.

Or

2 a What is photoelectric effect? Explain with diagram.

b Differentiate between MOT and VBT.

R.K. Science (P.G.) College, Kalwar, Jaipur

CHEMISTRY SEM.- VI FLP-II

Sec. A: Attempt all 10 questions. Each question carries a mark weight of 2.

1. What are carbon metallic compounds? Explain two methods of preparing carbon metallic compounds. 2. What are phosphagenes? Define them. 3. What are heterocyclic compounds? 4. Write two methods of preparing pyrrole. 5. What are Stock line and final Stock line? 6. What is Raman shift? 7. What are opposite bonding orbitals? 8. What is the heat capacity of a solid? 9. Explain Hamiltonian reaction factor. 10. Prepare gluconic acid from glucose.

Choose any 4 questions, choosing 1 question from each unit. Each question carries 15 marks.

UNIT-1. 1 Describe the importance of alkali metals in biological systems.

Or

2 a What is JJ salt and explain its structure

B. Discuss homogeneous catalytic hydrogenation of ethane by Wilkinson catalyst.

UNIT-II

Write a short note on the following

1 Bisler Napier Loss's synthesis, 2 Modelling synthesis, 3 Scarf synthesis Or 2 a

Write

the IUPAC name of pyrrole and write two methods of preparation

Give two methods for the synthesis of pyridine.

UNIT-III

1. Generate the energy of a diatomic molecule rigid rotator. Write the law describing the specific rotational spectra. Separate the intervals and periods between the lines of the property spectra.

Or

1 Write a short note on the following:

a Effect of isotopes on rotational spectra

b woman spectrum

UNIT-IV

1 a Explain what is Planck's law of radiation

b Write a note on the principle of uncertainty of Heygen class.

Or

2. Explain in detail the main concepts of quantum engineering.

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CHEMISTRY SEM.-VI HLP-I

Sec. A: Choose all 10 questions. Each question carries a mark weight of 2.

1. State two functions of haemoglobin. 2. Which metal is found in haemoglobin? 3. State the functions of alkali metals.

4. What are the essential elements? 5. Give the structure of furan. 6. Explain the Birch reaction.

7 What is Chechi-Babin reaction? 8 What is Riser reaction? 9 Explain Pictet-Spangler reaction.

Explain the Franklander reaction.

Sec. c Choose any 2 questions, choosing 1 question from each unit. Each question has 20 marks.

UNIT-I

1a) Describe the importance of alkali metals in biological systems.

b) Compare hemoglobin and myoglobin

or

2 Explain the structure of the following:

1. Methyllithium

2. Trimethyl tin dinitrate

3 What are carbon metallic compounds?

UNIT-II

1 Write a note on the glycosidic bond in milk sugar.

or

2 a Explain erythrothio description isomers

b. Discuss the structure of glucose by reaction

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CHEMISTRY SEM.- VI HLP-II

Sec. A Choose any 5 questions. Each question carries a mark weight of 2.

1. Give two uses of spectroscopy.

What is the selection rule?

Define electronic transition.

4 Give two differences between Raman spectroscopy and IR spectroscopy.

5 What is isotope effect

What is photoelectric effect

6 Write only two postulates of quantum engineering.

What is Planck's law of radiation?

8 Define eigenfunctions and eigenvalues

Explain Compton displacement.

10 What is hybridization?

Sec. c Choose any 2 questions, choosing 1 question from each unit. The mark weight of each question is

UNIT-III

1 Explain the simple harmonic oscillator model for the vibrational spectrum of a diatomic molecule.

2. Explain in detail the energy levels and absorption of different types of molecular orbitals and the transitions occurring in them.

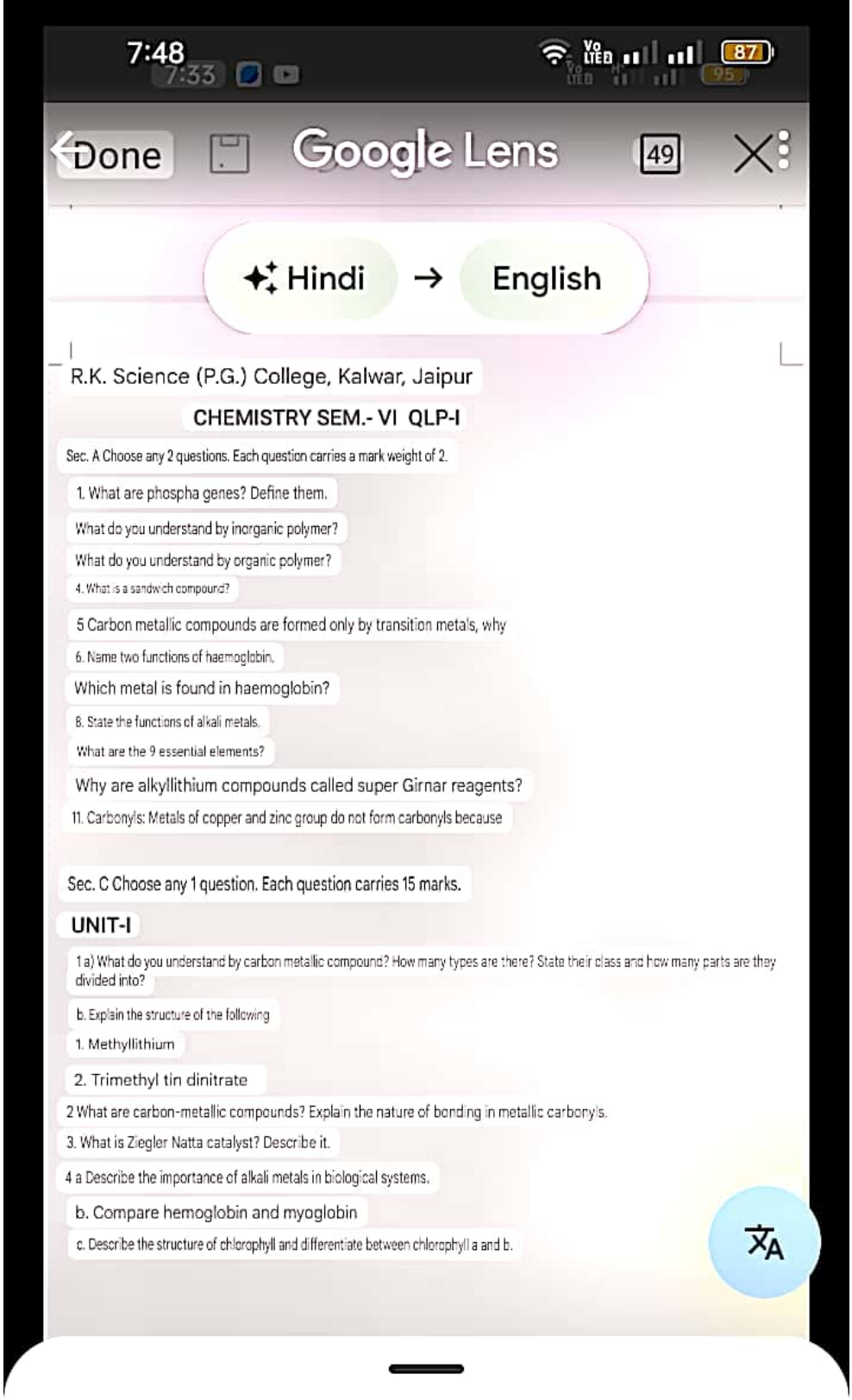
UNIT-IV

1 What do you understand by linear combination of atomic orbitals? Generate a recipe for the wave function of molecular orbitals of hydrogen molecule ion and calculate

its

energy. 2 Briefly explain the valence closed model and molecular orbital model for H2 molecule and compare them.

compare



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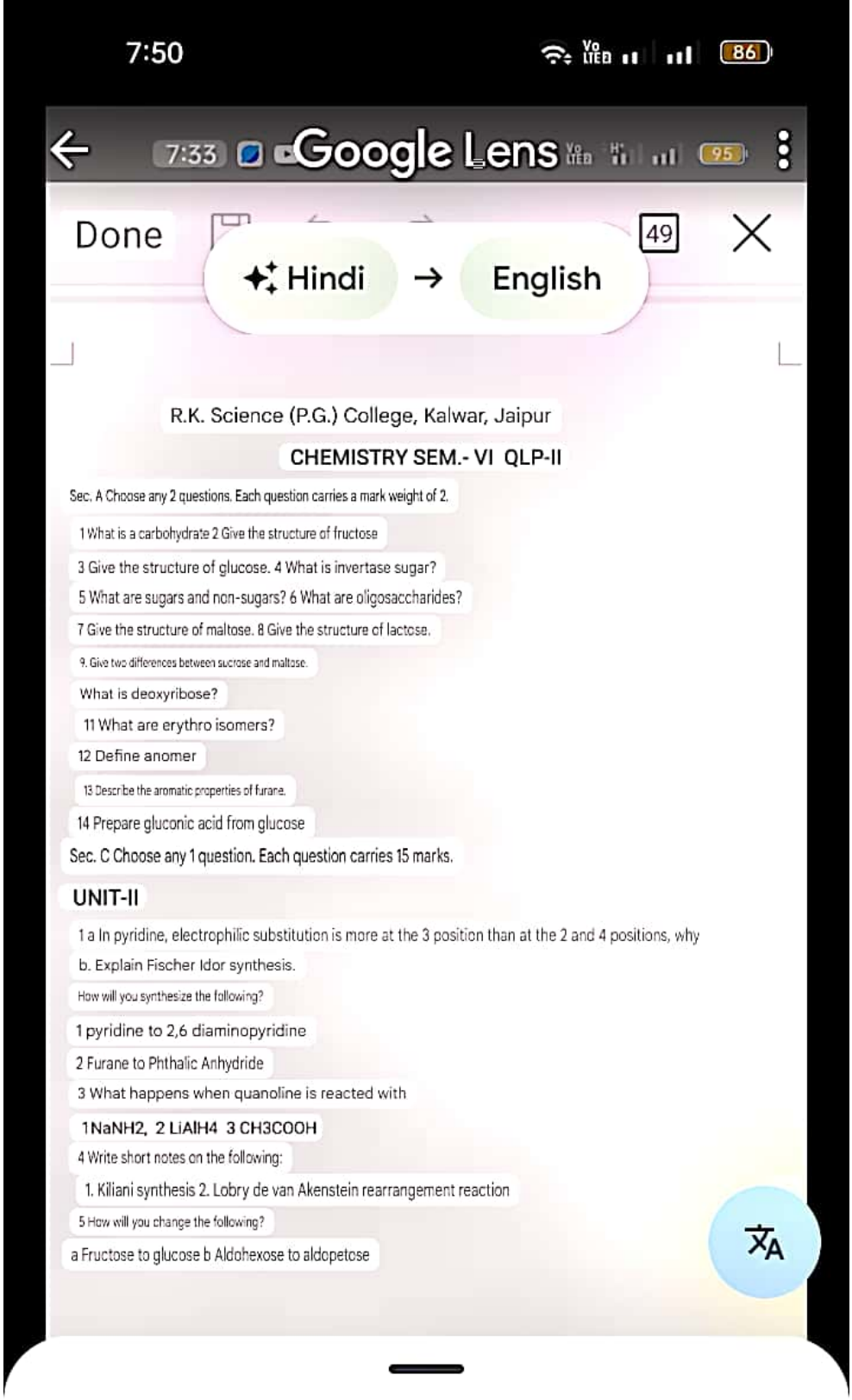

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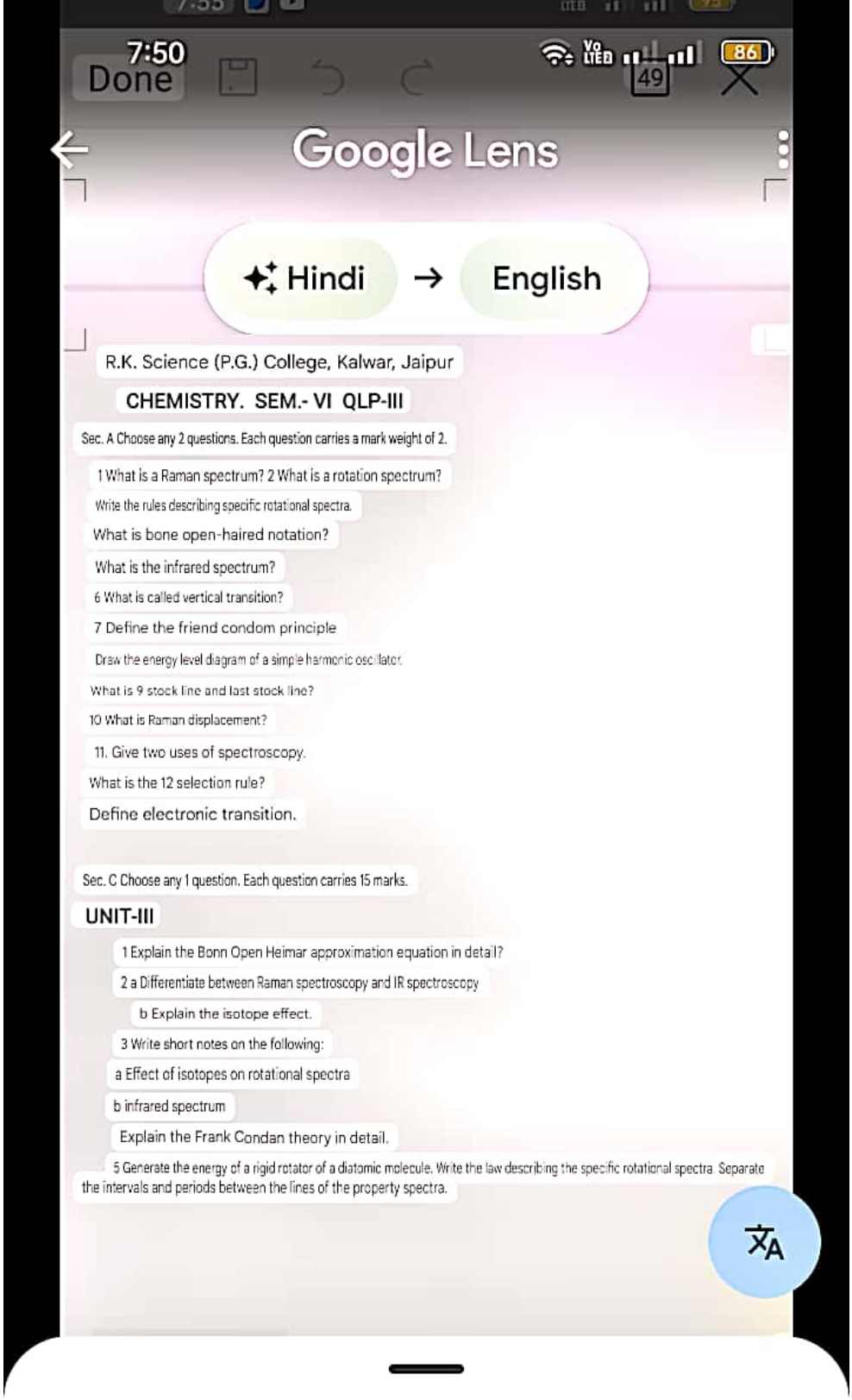

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R.K. Science (P.G.) College, Kalwar, Jaipur

CHEMISTRY SEM.- VI QLP-IV

Sec. A Choose any 2 questions. Each question carries a mark weight of 2.

1. What is Planck's radiation law? 2. Define eigenfunctions and eigenvalues.

3. Define blackbody radiation. 4. What is hybridization?

5. State two differences between MOT and VBT. 6. Write two points of LCAO principle.

Draw diagrams of 7s_s and P - P overlaps.

8 What are bonding orbitals. 9 What are opposite bonding orbitals

10 What is the heat capacity of a solid? 11 State the Hamiltonian heat factor.

*Choose any 1 question. Each question carries 15 marks.

UNIT-IV

1 a Derive the de Broglie equation. Prove how this equation explains the dual nature of causal and wave reactions. Explain

b Explain black body radiation.

2 a Explain Eigen functions and Eigen values

b Write the Schrödinger equation and explain the physical significance of the sine squared in sine.

3 What is hybridization? Calculate the mixing coefficients of sp and sp2 hybridized orbitals and obtain the wave function for it.

4 Calculate the mixing coefficients for a sp2 hybridized orbital and obtain its wave function.

b. Differentiate between bonded and reverse bonded chambers.

Explain the difference between C MOT and VBT.