A07KU22

Candidate Code.....

Name and signature of candidate.....

UNIVERSITY OF KERALA

FOURTH SEMESTER M.Sc. PHYSICS PRACTICAL EXAMINATIONS, SEPTEMBER 2022

Time: 6 Hours PH 261 ADVANCED PHYSICS PRACTICALS Max. Marks 75

(Attempt the marked questions)

PART A (45 Marks)

1. Calculate the Fermi energy of Cu experimentally by measuring the resistance/resistivity at different temperatures.
2. Draw the characteristics of GM counter for two different radioactive sources or two different distances for a given time interval.Compare the width of their Plateau regions.
3. Determine the magnetic susceptibility of a given paramagnetic salt by Quincke's method. Repeat the experiment for a different concentration.
4. Find the specific charge of electron by Thomson's method.
5. Measure the Hall voltage developed in the given specimen and calculate the Hall coefficient of the material.

PART B (20 Marks)

1. From the given data, investigate the statistical laws of counting the particles emitted from the radioactive source.
2. Analyse absorption spectrum of iodine vapour and determine the dissociation energy for ground and excited state.
3. Using the data of X-ray diffraction, find the lattice constant of the crystal and identify the crystal lattice.
4. From the given data of molecular spectrum, find the rotational and vibration constants.
5. Using the given data of Raman/IR spectrum calculate the molecular constants.

FOR THE USE OF EXAMINERS ONLY

PART A -General Experiment	Marks awarded	Max Marks	PART A -General Experiment (For Spectroscopic expts.)	Marks awarded	Max. Marks
Brief theory and formula		10	For clear photo		15
Viva-voce during exam		5	Theory, formula, Viva Voce		15
Observation, tabulation		10	Calculation		10
Skill in performance		5	Result and Discussion		5
Calculation /graph		10	**Total- Part A**		**45**
Error analysis		2	**PART B Data analysis**	**Awarded**	**Max.**
Result with correct unit		3	Calculation		15
Total- Part A		**45**	Result and discussion		5
Record		**10**	**Total -Part-B**		**20**

REMARKS/COMMENTS:

	Marks	Max.
Part A		45
Part B		20
Record		10
Total		**75**

Name and Signature of Examiner 1

Name and Signature of Examiner 2