

Name and signature of candidate.....

UNIVERSITY OF KERALA

FOURTH SEMESTER M.Sc. PHYSICS PRACTICAL EXAMINATIONS, AUGUST 2021

Time: 6 Hours

PH 261 ADVANCED PHYSICS PRACTICALS

Max. Marks 75

(Attempt the marked questions)

PART A (45 Marks)

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

PART B (20 Marks)

1. Construct Deslandress table using the given data of band heads and hence calculate the anharmonicity factors of the ground and excited states.
2. Analyse absorption spectrum of iodine vapour and determine the dissociation energy for ground and excited state.
3. Determine the band gap of the given material from UV-Visible spectrum.
- ② 4. From the given data of molecular spectrum, find the rotational and vibration constants.
5. Using the data of X-ray diffraction, find the lattice constant of the crystal and identify the crystal lattice

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