

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)

1. Draw the characteristics of GM counter for two different radioactive sources for a given time interval. Compare the width of their Plateau regions.
2. Find the band gap energy of Ge/Si by measuring the current through the diode.
3. Plot the V-I characteristics of a solar cell. Estimate its efficiency and fill factor. Repeat the experiment for a different intensity.
4. Measure the Hall voltage developed in the given specimen and calculate the Hall coefficient of the material.
5. Calculate the Fermi energy of Cu experimentally by measuring the resistance/resistivity at different temperatures.

PART B (20 Marks)

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

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