



A-1516

M. Sc. (Sem. III) (Physics) Examination

March / April – 2015

PH (M) - 533 - Crystal Growth & Charecterization

Time : Hours]

[Total Marks :

Instructions :

(1)

नीचे दृश्यादिब निशानीयाणी विगतो उतरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
M. Sc. (Sem. III) (Physics)	<input type="text"/>
Name of the Subject :	<input type="text"/>
PH (M) - 533 - Crystal Growth & Charecterization	<input type="text"/>
Subject Code No. : <input type="text"/> 1 <input type="text"/> 5 <input type="text"/> 1 <input type="text"/> 6	<input type="text"/>
Section No. (1, 2,.....): Nil	
	Student's Signature

- (2) Figures to the extreme right side indicate full marks.
- (3) Symbols used have their usual Meaning
- (4) Assume data if required.

1 Write the Answer ANY TWO of the following (7×2=14) 14

- (a) (i) What is Crystal?
(ii) Explain classification of crystal.
(iii) Write the applications of single crystal.
- (b) (i) What is the Technological importance of crystals in Industry and Research area?
(ii) Discuss on History of crystal and production of crystal in world.
- (c) Define solid phase for crystal growth. Derive the relation for Thomson equation for melt Growth.

2 Write the Answer ANY TWO of the following (7×2=14) 14

- (a) (i) What is differences between Bridgman Method and Czochralski Method for Crystal Growth.
(ii) Which method is used for growth of Sapphire Crystal? Why?
- (b) (i) Explain the Crystal grown by Zone refining Method.
(ii) Write the Advantages and disadvantages of this Method.

- (c) (i) Explain KCl crystal grown by Czochralski Method.
(ii) How to grown KCl crystal on (111) plane.
- 3** Write the Answer ANY TWO of the following (7×2=14) **14**
- (a) (i) What is gel?
(ii) What is the importance of temperature in solubility?
(iii) What are the Advantages and disadvantages of gel?
- (b) (i) Discuss on Crystal Grown by Hydrothermal method.
(ii) Which parameters are affected on crystal grown by Aqueous solution method?
- (c) (i) Explain KDP Crystal grown by solution method.
(ii) Which types of crystals are grown by solution method?
- 4** Write the Answer ANY TWO of the following (7×2=14) **14**
- (a) (i) Explain Vapor phase Epitaxy.
(ii) What is the different between CVD and CVT ?
- (b) (i) Define vapor growth. Write the types of vapor growth method.
(ii) What are the limitations of chemical vapor deposition method ?
- (c) (i) Explain CdTe thin film grown by Electrode position Method.
(ii) Which type crystals are not growing by vapor growth.
- 5** Write the Answer ANY TWO of the following **14**
- (a) (i) How to calculate the activation energy for grown crystal from Thermal Gravimetric Analysis (TGA) ?
(ii) Write the types of X-ray diffraction method.
- (b) (i) Write the stages of qualitative Analysis.
(ii) Discuss on qualitative and chemical Analysis for grown crystal.
- (c) (i) What is the used on optical Microscopy for grown crystal ?
(ii) How to calculate Energy band gap and conductivity for grown material ?