

Unit 7 - Week 6

Course outline

How does an NPTEL online course work?

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Thin Films for Surface Engineering of Nanomaterials

Sputtering Techniques

Evaporation Processes

Thin Film Deposition through Gas Phase Techniques

Liquid Phase Techniques

Quiz : Assignment 6

Solution for Assignment 6

Week 7

Week 8

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Assignment 6

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-11, 23:59 IST.

All are compulsory

1) Select the objectives of thin film deposition? 1 point

- To maintain surface uniformity
- To reduce the amount (or mass) of light absorbing materials
- To decrease the weight and bulkiness of the materials
- All of these

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of these

2) Choose a correct method which is NOT included in liquid phase thin film deposition technique? 1 point

- Chemical vapor deposition
- Spray pyrolysis
- Electroplating
- Spin coating

No, the answer is incorrect.

Score: 0

Accepted Answers:

Chemical vapor deposition

3) With respect to DC sputtering, which of the following statement is correct? 1 point

- A conductive inter-layer is used for the transfer of plasma from cathode to anode
- An electrolytic solution is used for the transfer of plasma from cathode to anode
- A conductive target is used for the transfer of plasma from cathode to anode
- An insulative target is used for the transfer of plasma from cathode to anode

No, the answer is incorrect.

Score: 0

Accepted Answers:

A conductive target is used for the transfer of plasma from cathode to anode

4) What should be the incident angle (from normal) for maximum sputter yield? 1 point

- 45° - 55°
- 60° - 70°
- 75° - 90°
- 30° - 40°

No, the answer is incorrect.

Score: 0

Accepted Answers:

60° - 70°

5) What should be the required kinetic energy for thin film preparation by evaporation technique? 1 point

- 4 eV
- 2 eV
- 0.5 eV
- 3 eV

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.5 eV

6) Choose the correct statement for evaporation technique. 1 point

- Mean free path of atoms in the vapor is smaller than the distance between source and substrate
- Mean free path of atoms in the vapor is greater than the distance between source and substrate
- Mean free path of atoms in the vapor is independent of the distance between source and substrate
- Mean free path of atoms in the vapor is equal to the distance between source and substrate

No, the answer is incorrect.

Score: 0

Accepted Answers:

Mean free path of atoms in the vapor is greater than the distance between source and substrate

7) Thermal oxidation of silicon is usually performed at a temperature range of: 1 point

- 800 °C – 1200 °C
- 1200 °C – 1400 °C
- 400 °C – 600 °C
- 600 °C – 800 °C

No, the answer is incorrect.

Score: 0

Accepted Answers:

800 °C – 1200 °C

8) Select the correct relation between diffusion flux of reactant species to the wafer and mass transfer coefficient? 1 point

- $F_1 = C_G(C_S - h_G)$
- $F_1 = h_G(C_S - C_G)$
- $F_1 = h_G(C_G - C_S)$
- $F_1 = C_G(h_G - C_S)$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$F_1 = h_G(C_G - C_S)$

9) Which of the following is the abbreviation of SILAR method? 1 point

- Successive ionic layer adsorption and reaction
- Successive induced layer absorption and reaction
- Simple ionic layer absorption and reaction
- Simultaneous induced layer adsorption and reaction

No, the answer is incorrect.

Score: 0

Accepted Answers:

Successive ionic layer adsorption and reaction

10) In electroplating technique, anode materials are of _____ type. 1 point

- Ceramic
- Semiconductors
- Metal
- Insulators

No, the answer is incorrect.

Score: 0

Accepted Answers:

Metal