

X


<https://swayam.gov.in>

https://swayam.gov.in/nc_details/NPTEL
reviewer4@nptel.iitm.ac.in

NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » **Fundamentals of Surface Engineering: Mechanisms, Processes and Characterizations (course)**

[Announcements \(announcements\)](#)

[About the Course \(https://swayam.gov.in/nd1_noc19_me69/preview\)](https://swayam.gov.in/nd1_noc19_me69/preview) [Ask a Question \(forum\)](#)

[Progress \(student/home\)](#) [Mentor \(student/mentor\)](#)

Unit 9 - Week 8

Course outline

How to access the portal

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

- Surface modification techniques: Vacuum based surface modification I (unit? unit=54&lesson=55)

Assignment No. 8

The due date for submitting this assignment has passed. **Due on 2019-09-25, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Prolonged exposure to high temperature during conventional carburizing may lead to **1 point**

- Deterioration of mechanical properties
 Loss of alloying elements
 Oxidation and grain coarsening
 All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of the above

2) Sputtering process involves deposition of surface layer on substrate surface in the form of **1 point**

- Chemicals
 Vapours
 Filler wires
 Atoms

No, the answer is incorrect.

Score: 0

Accepted Answers:

Atoms

3) The crystal structure of martensite commonly observed in carbon steels is **1 point**

Surface modification techniques: Ion implantation and ion plating (unit? unit=54&lesson=56)

Surface modification techniques: Sputtering and Ion beam assisted deposition (unit? unit=54&lesson=57)

Surface modification techniques: Chemical vapour deposition and boronizing (unit? unit=54&lesson=58)

Surface modification techniques: Laser alloying (unit? unit=54&lesson=59)

Quiz : Assignment No. 8 (assessment? name=102)

Solution for Assignment No. 8 (unit? unit=54&lesson=116)

Week 9

Week 10

Week 11

Week 12

FEEDBACK FORM

DOWNLOAD VIDEOS

- FCC
- Simple cubic
- Body centred tetragonal
- Hexagonal close packed

No, the answer is incorrect.
Score: 0

Accepted Answers:
Body centred tetragonal

- 4) The features associated with ion beam assisted deposition are **1 point**
- I. Self-cleaning process
 - II. Poor intermixing of coating material and substrate
 - III. Reduced metallurgical incompatibility issues
 - IV. Gradual variation in composition and properties

- I, II & III
- II, III & IV
- I, III & IV
- III & IV

No, the answer is incorrect.
Score: 0

Accepted Answers:
I, III & IV

- 5) In sputtering process, the high energy atoms/ions released from target are accelerated towards the substrate by using **1 point**

- Magnetrons
- Diodes
- Bias
- All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Bias

- 6) Generally, in sputtering process the working chamber is filled in with **1 point**

- Argon
- Chlorine
- Oxygen
- CO₂

No, the answer is incorrect.
Score: 0

Accepted Answers:
Argon

- 7) Thin films deposited on tool inserts by chemical vapour deposition process offer **1 point**

- High toughness
- Resistance to thermal softening
- Excellent hardness and wear resistance to the tool
- Both b and c

No, the answer is incorrect.
Score: 0

Accepted Answers:

Both b and c

8) In pack Boronizing, constituent (boron carbide), activator (ammonium difluoride) and inert material (SiC) are provided in the ratio of **1 point**

- 5:93:2
- 5:2:93
- 93:5:2
- 2:93:5

No, the answer is incorrect.

Score: 0

Accepted Answers:

5:2:93

9) Assume dilution from substrate (10Cr-0.2C steel) material to be 25% at 1 mm depth from the surface. If 100% Cr powder was used for laser alloying of (10Cr-0.2C steel) steel, the percentage of Cr at 1 mm depth will be **1 point**

- 25%
- 75%
- 77.5%
- 32.5%

No, the answer is incorrect.

Score: 0

Accepted Answers:

77.5%

10) Laser alloying with co-axial feeding introduces alloying elements in the form of **1 point**

- Filler wires
- Powder
- Pre-placed paste
- Both a and b

No, the answer is incorrect.

Score: 0

Accepted Answers:

Both a and b

