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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) Ask a Question (forum)

Progress (student/home) Mentor (student/mentor)

Unit 7 - Week 6

Course outline

How to access the portal

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

- Surface modification techniques: Controlling surface metallurgy I (unit? unit=40&lesson=41)

- Surface modification techniques: Controlling

Assignment No. 6

The due date for submitting this assignment has passed. **Due on 2019-09-11, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Skin effect phenomena is observed in

1 point

- Laser hardening
- Electron beam hardening
- Flame hardening
- Induction hardening

No, the answer is incorrect.

Score: 0

Accepted Answers:

Induction hardening

2) Parameters of induction hardening that need to be controlled to achieve the required depth of hardening is

1 point

- Speed of coil
- Power of induction heating
- Frequency of AC
- All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of the above

surface metallurgy II (unit? unit=40&lesson=42)

○ Surface modification techniques: Controlling surface metallurgy III (unit? unit=40&lesson=43)

○ Surface modification techniques: Controlling surface metallurgy IV (unit? unit=40&lesson=44)

○ Surface modification techniques: Changing surface composition (unit? unit=40&lesson=45)

○ **Quiz : Assignment No. 6 (assessment? name=100)**

○ Solution for Assignment No. 6 (unit? unit=40&lesson=114)

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

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3) Surface modification technique in which surface of the substrate is remelted is **1 point**

- Tungsten inert gas welding
- Shot peening
- Cold spraying
- Contour rolling

No, the answer is incorrect.
Score: 0

Accepted Answers:
Tungsten inert gas welding

4) Surface modification of austenitic stainless steels through work hardening approach is based on **1 point**

- Reduction of grain size
- Increasing the dislocation density
- Precipitation of secondary phases in the soft austenitic matrix
- All of above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Increasing the dislocation density

5) Elongated structures & flattening of peaks and valleys are the characteristic features of **1 point**

- Laser heating
- Burnishing
- Flame hardening
- Induction hardening

No, the answer is incorrect.
Score: 0

Accepted Answers:
Burnishing

6) The shot peening of steel results in **1 point**

- Residual compressive stresses
- Residual compressive stresses in the bulk material
- Residual tensile stresses at the surface
- Residual compressive stress at the surface & residual tensile stress at the sub surface region

No, the answer is incorrect.
Score: 0

Accepted Answers:
Residual compressive stress at the surface & residual tensile stress at the sub surface region

7) Friction Stir Processing leads to **1 point**

- Development of weld joint
- Elimination of defects
- Development of coating
- Elimination of fine grains

No, the answer is incorrect.
Score: 0

Accepted Answers:
Elimination of defects

8) Hardening Precipitates in Al 7xxx alloy is

1 point

- Mg₂Si
- MgZn₂
- Al₂Cu
- All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

MgZn₂

9) The surface modification technique that leads to no change in surface chemistry of the substrate is

1 point

- Remelting
- Burnishing
- Laser hardening
- All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of the above

10) Surface Modification technique like plasma, nitriding through change in composition helps to increase

1 point

- Tensile strength & hardness
- Toughness
- Wear resistance
- All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of the above