X

NPTEL

reviewer4@nptel.iitm.ac.in ▾

Courses » Surface Engineering for Corrosion and Wear Resistance Application

Announcements **Course** Ask a Question Progress FAQ

# Unit 10 - Week 8 :

Register for Certification exam

## Course outline

How to access the portal

Week 0 :

Week 1 :

Week 2 :

Week 3 :

Week 4 :

Week 5 :

Week 6 :

Week 7 :

Week 8 :

- Lecture 34 : High Temperature Degradation
- Lecture 35 : Corrosion Prevention
- Lecture 36 : Chemical Conversion Coating
- Lecture 37 :

## Assignment 8

**The due date for submitting this assignment has passed.**
**As per our records you have not submitted this assignment.** **Due on 2019-03-27, 23:59 IST.**

1) Phosphating is a type of: ***1 point***

- a. Chemical conversion coating
- b. Organic coating
- c. Electroplating
- d. Vapor deposition coating

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. Chemical conversion coating*

2) Which of the following substrates cannot be subjected to electrodeposition? ***1 point***

- a. copper
- b. iron
- c. tin
- d. Aluminium

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*d. Aluminium*

3) Thermal oxidation of titanium based substrate is not applied for the following purpose ***1 point***

- a. Improving scratch resistance
- b. Improving biocompatibility
- c. Improving adhesive wear resistance
- d. Improving yield strength

a. $TiO_2$ on Ti by thermal oxidation
b. TiN coating on Ti
c. Cr coated steel
d. Ni electro-less deposition on steel

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*b. TiN coating on Ti*

5) Which of the following process is applied for cleaning of rusted steel prior to electrodeposition? ***1 point***

a. Pickling
b. Thermal evaporation
c. Water rinsing
d. Sputter cleaning

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. Pickling*

6) Which of the following pre-treatment can allow electrodeposition of nickel on stainless steel, which is otherwise not suitable for the said purpose? ***1 point***

a. Acid pickling
b. Electroless deposition of Ni prior to electrodeposition
c. Annealing prior to electrodeposition
d. Using chloride bath as electrolyte

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*b. Electroless deposition of Ni prior to electrodeposition*

7) The nucleation rate during electrodeposition is proportional to ***1 point***

a. Bath pH
b. Additive concentration
c. Current density
d. Time

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*c. Current density*

8) Pulse reverse electrodeposition is more effective than continuous DC electrodeposition because of ***1 point***

a. Higher deposition rate of the former than the later
b. Simultaneous cleaning during electrodeposition
c. Better control over the growth rate
d. Higher deposition kinetics

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*b. Simultaneous cleaning during electrodeposition*

9) Electroforming is a superior forming process to other conventional forming because of **1 point**

- a. Possibility of better control over microstructure
- b. Possibility of developing dendritic microstructure
- c. Possibility of forming large component
- d. Possibility of formation of alloy with the same composition

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. Possibility of better control over microstructure*

10) Phosphating treatment is usually applied for **1 point**

- a. Improving corrosion resistance
- b. Pretreatment for subsequent painting operation
- c. For wear resistance application
- d. For high temperature oxidation resistance

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*b. Pretreatment for subsequent painting operation*

11) Anodising is a process which refers to **1 point**

- a. Deposition of oxide layer on the surface of metal
- b. Development of organic coating on the surface
- c. Electrochemical conversion coating using the components as anode for converting the metal to its oxide
- d. Formation of thick oxide layer for improving the toughness of surface

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*c. Electrochemical conversion coating using the components as anode for converting the metal to its oxi*

12) Micro arc oxidation is used to develop a thick oxide coating on the surface of substrate in contrast to anodizing because **1 point**

- a. The mechanism of oxide formation is different in micro arc oxidation as compared to that of anodizing.
- b. Development of porous oxide causing availability of more area fraction of surface
- c. Development of oxide layer at a faster rate due to different electrolytes used for oxidation
- d. Higher time available for oxidation

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. The mechanism of oxide formation is different in micro arc oxidation as compared to that of anodizing*

13) For which of the following purpose anodizing treatment is used? **1 point**

a. As a pre-treatment for subsequent painting operation

b. Thermal barrier application

c. Gauging wear resistance application

d. Corrosion resistance application

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. As a pre-treatment for subsequent painting operation*

14) Cathodic protection is usually applied to improve **1 point**

a. Wear resistance of the surface

b. Aqueous corrosion resistance of the surface

c. Utilize the component as cathode in other applications

d. To improve high temperature oxidation resistance

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*b. Aqueous corrosion resistance of the surface*

15) Though thermal oxidation of Ti is a unique technique for improving wear and corrosion resistance of titanium, however, temperature and time for treatment should be carefully chosen because **1 point**

a. The phase formed on the surface depends on the temperature

b. Temperature influences the adherence of the oxide film

c. Thickness decreases with increase in temperature

d. Temperature determines the compactness of the oxide scale

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. The phase formed on the surface depends on the temperature*

16) Which of the following techniques may be applied for improving cavitation corrosion resistance of aluminium? **1 point**

a. Anodization

b. Micro arc oxidation

c. Electrodeposition of chromium on electroless deposited aluminium

d. Weld overlaying

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*b. Micro arc oxidation*

17) Hydrophobic surface is usually preferred for improving the **1 point**

a. Aqueous corrosion resistance property

b. Adhesive wear resistance property

c. Biocompatibility

d. High temperature oxidation resistance property

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. Aqueous corrosion resistance property*

18) Surface nitriding may be applied on Ti6Al4V for improving **1 point**

- a. Wear resistance
- b. Corrosion resistance
- c. High temperature oxidation resistance
- d. Cathodic protection

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. Wear resistance*

19) Macro-throwing power of the electrolyte is helpful because it determines the **1 point**

- a. Level of deposition
- b. Thickness of deposition
- c. Lustre of deposition
- d. Adhesion of deposition

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. Level of deposition*

20) Rate of electrodeposition usually differs from ideal rate as calculated from Faraday's law because **1 point**

- a. Decreased kinetics of ion transportation due to hindrance to its motion
- b. Presence of surface roughness
- c. Absence of required temperature
- d. Absence of pressure

**No, the answer is incorrect.**
**Score: 0**

**Accepted Answers:**
*a. Decreased kinetics of ion transportation due to hindrance to its motion*

Previous Page End