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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 4 - Week 3

Course outline

How to access the portal

Week 1

Week 2

Week 3

- Issues and application of surface modification (unit? unit=19&lesson=20)
- Surface damage: type and categories (unit? unit=19&lesson=21)
- Surface damage: Adhesive wear I (unit? unit=19&lesson=22)

Assignment No. 3

The due date for submitting this assignment has passed. **Due on 2019-08-21, 23:59 IST.**
As per our records you have not submitted this assignment.

1) The type of coating generally used to improve the optical & electrical properties of substrate material is **1 point**

- Chromizing
- Galvanizing
- Gold coating
- Vanadizing

No, the answer is incorrect.

Score: 0

Accepted Answers:

Gold coating

2) The diffusion based surface modification processes are **1 point**

- I. Nitriding
- II. Cyaniding
- III. Ion implantation
- IV. Laser alloying

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

Surface damage: Adhesive wear II (unit? unit=19&lesson=23)

Surface damage: Classical law of adhesive wear and abrasive wear (unit? unit=19&lesson=24)

Quiz : Assignment No. 3 (assessment? name=97)

Solution for Assignment No. 3 (unit? unit=19&lesson=110)

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

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No, the answer is incorrect.
Score: 0

Accepted Answers:
I & II

3) During surface degradation of a component, the phenomena involved for Tribo-corrosion to occur are **1 point**

- Only physical
- Only biological
- Only chemical
- Both physical and chemical

No, the answer is incorrect.
Score: 0

Accepted Answers:
Both physical and chemical

4) For stress corrosion cracking of metals to occur, the required conditions are **1 point**

- Elevated temperature and corrosive environment
- Compressive residual stresses and corrosive environment
- Compressive residual stresses and elevated temperature
- Tensile residual stresses, elevated temperature and corrosive environment

No, the answer is incorrect.
Score: 0

Accepted Answers:
Tensile residual stresses, elevated temperature and corrosive environment

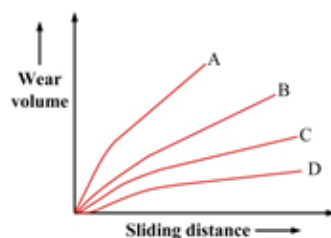
5) Reduction of friction & sliding wear is observed due to **1 point**

- Low mechanical interlocking
- Low electron exchange
- Low diffusion
- All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

6) The variation of wear volume with sliding distance is plotted for four different materials (A, B, C and D). The most suitable material for tribological system will be **1 point**



- A
- Both B and C
- Both A and D
- D

No, the answer is incorrect.
Score: 0

Accepted Answers:

D

7) Severe metallic wear condition during sliding involves

1 point

- Thermal softening of components
- Generation of very high frictional heat
- Metallic failure of components
- All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of the above

8) Characteristic feature of a substrate surface subjected to severe wear conditions is

1 point

- Shiny & deformed surface with presence of debris consisting black oxides
- Dull & deformed surface with presence of debris consisting black oxides
- Shiny & deformed surface with presence of debris consisting metallic particles
- Dull & deformed surface with presence of debris consisting metallic particles

No, the answer is incorrect.

Score: 0

Accepted Answers:

Shiny & deformed surface with presence of debris consisting metallic particles

9) The type of contact that results in high true stress when two components move relative to each other under the adhesive wear condition is

1 point

- Point contact
- Line contact
- Surface contact
- All of above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Point contact

10) According to Archard's law for adhesive wear

1 point

(V =volume of material loss in m^3 , L =load in N , D =sliding distance in m , H =hardness)

- V is directly proportional to H
- V is inversely proportional to L
- V is inversely proportional to D
- V is inversely proportional H

No, the answer is incorrect.

Score: 0

Accepted Answers:

V is inversely proportional H

