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

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Unit 13 - Week 12

Course outline

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Assignment No. 12

The due date for submitting this assignment has passed. Due on 2019-10-23, 23:59 IST. As per our records you have not submitted this assignment.

1) The surface roughness measurement method in which physical contact between measuring instrument and modified surface made is **1 point**

- Laser method
- Optical measurement
- Atomic force microscopy
- All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Atomic force microscopy

2) A weight gain of 10 g was observed after surface modification. The thickness of modified surface, assuming the uniform length, width and density for both substrate and coating material to be 100 cm, 25 cm and 7800 kg/m³ respectively is **1 point**

- 5 μm
- 50 μm
- 0.5 mm
- 0.5 μm

No, the answer is incorrect.

Score: 0

Accepted Answers:

Week 12

Characterization of modified surfaces: Surface roughness and thickness II (unit? unit=82&lesson=83)

Characterization of modified surfaces: Thickness and soundness (unit? unit=82&lesson=84)

Characterization of modified surfaces: Soundness and mechanical properties (unit? unit=82&lesson=85)

Characterization of modified surfaces: Metallography (unit? unit=82&lesson=86)

Characterization of modified surfaces: Wear behavior (unit? unit=82&lesson=87)

Quiz : Assignment No. 12 (assessment? name=106)

Solution for Assignment No. 12 (unit? unit=82&lesson=120)

FEEDBACK FORM**DOWNLOAD VIDEOS**5 μm

3) Correct sequence in dye penetrant testing for investigation of surface cracks is **1 point**

- Application of dye, wiping out dye, application of developer
- Application of developer, wiping out developer, application of dye
- Application of developer, application of dye, wiping out dye
- Application of dye, application of developer, wiping of developer

No, the answer is incorrect.

Score: 0

Accepted Answers:

Application of dye, wiping out dye, application of developer

4) In the ball indentation technique, the diameter of indentation at the surface substrate and modified layer were found to be 10 mm and 12 mm respectively. The thickness of modified layer (if diameter of ball is 30 mm) is **1 point**

- 0.333 mm
- 0.367 mm
- 0.4 mm
- 0.667 mm

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.367 mm

5) The coating-substrate bond strength can be assessed through **1 point**

- Hardness test
- Bend test
- Impact toughness test
- Chemical composition analysis

No, the answer is incorrect.

Score: 0

Accepted Answers:

Bend test

6) For microhardness measurement, the important parameters are **1 point**

- Applied load
- Dimensions of the indentation
- Both a and b
- Dimensions of specimen

No, the answer is incorrect.

Score: 0

Accepted Answers:

Both a and b

7) The most appropriate EDAX analysis to quantify average chemical composition of multiple grains (like five grains) **1 point**

- Point analysis
- Optical emission spectroscopy
- Area analysis
- Wet analysis

No, the answer is incorrect.
Score: 0

Accepted Answers:
Area analysis

8) Micro-chemical analysis can be performed with

1 point

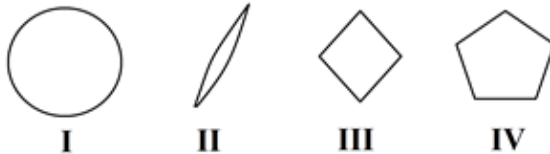
- Optical emission spectroscopy
- Optical microscopy
- SEM coupled with EDX
- All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
SEM coupled with EDX

9) The grain shape which will offer best adhesive wear resistance of a hard and brittle crack sensitive material is

1 point



- I
- II
- III
- IV

No, the answer is incorrect.
Score: 0

Accepted Answers:
I

10) In the adhesive wear plot between wear volume and sliding distance, the most important output (for design purpose) showing wear behavior is

1 point

- Wear volume in run-in period
- Slope of the curve in run-in period
- Slope of the curve steady state period
- Sliding distance in run-in period

No, the answer is incorrect.
Score: 0

Accepted Answers:
Slope of the curve steady state period

