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Courses » Surface Engineering for Corrosion and Wear Resistance Application

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Assignment 9

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2019-04-03, 23:59 IST.**1) Hot dipping is a process of developing coating by: **1 point**

- a. Dipping the substrate into an aqueous electrolyte at room temperature
- b. Dipping the substrate in molten metal bath having low melting/fusion temperature
- c. Dipping the substrate in a solution which reacts with the substrate surface to form a compound
- d. Dipping the substrate in a aqueous electrolyte and passing electric current

No, the answer is incorrect.**Score: 0****Accepted Answers:***b. Dipping the substrate in molten metal bath having low melting/fusion temperature*2) Aluminium may be coated on the following substrate by hot dipping: **1 point**

- a. Tin
- b. Steel
- c. Zinc
- d. Magnesium

No, the answer is incorrect.**Score: 0****Accepted Answers:***b. Steel*3) Tin may be coated on steel by hot dipping for improving: **1 point**

- a. Aqueous corrosion resistance in water
- b. High temperature oxidation resistance
- c. Aqueous corrosion resistance in dilute HNO₃ solution

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- a. Pb + 25 wt. % Sn
- b. Cu + 40 wt. %Zn
- c. Sn +25-30 wt. %Pb + 10 wt. %Sb
- d. Al + 5 wt. %Si

No, the answer is incorrect.

Score: 0

Accepted Answers:

c. Sn +25-30 wt. %Pb + 10 wt. %Sb

5) Galvanizing is the term used to indicate:

1 point

- a. Zn coating
- b. Fe coating
- c. Al coating
- d. Sn coating

No, the answer is incorrect.

Score: 0

Accepted Answers:

a. Zn coating

6) Which of the following pre-treatment steps need to be undertaken prior to hot dipping of rusted steel?

1 point

- a. Rust removal by acid pickling
- b. Grinding
- c. Phosphating
- d. Chromium electrodeposition

No, the answer is incorrect.

Score: 0

Accepted Answers:

a. Rust removal by acid pickling

7) Aluminium is usually added while hot dip galvanizing of zinc for the following purpose:

1 point

- a. Al reduces the melting point of zinc bath
- b. Al suppresses the formation of Fe-Zn intermetallics
- c. Al increases the oxidation of Zn bath
- d. Al increases the strength of the coating

No, the answer is incorrect.

Score: 0

Accepted Answers:

b. Al suppresses the formation of Fe-Zn intermetallics

8) Which of the following is the composition of Galfan bath (in wt. %)?

1 point

- a. Zn-1%Al
- b. Zn-5%Al
- c. Al-1%Zn
- d. Al-10%Zn

No, the answer is incorrect.

Score: 0

Accepted Answers:

b. Zn-5%Al

9) Which of the following process may not be considered as thermal spray coating? **1 point**

- a. Plasma spraying
- b. Flame spraying
- c. HVOF spraying
- d. Metallizing



No, the answer is incorrect.

Score: 0

Accepted Answers:

d. Metallizing

10) Which of the following thermal spray coating process may be applied for the development of nano structured coating? **1 point**

- a. Plasma spraying
- b. Flame spraying
- c. Arc spraying
- d. Kinetic spraying

No, the answer is incorrect.

Score: 0

Accepted Answers:

d. Kinetic spraying

11) The pre-treatment usually applied prior to coating by thermal spraying is: **1 point**

- a. Grinding
- b. Chemical etching
- c. Ion etching
- d. Sand blasting

No, the answer is incorrect.

Score: 0

Accepted Answers:

d. Sand blasting

12) Flame spraying technique may be applied for the development of following coatings: **1 point**

- a. Aluminium or zinc coating
- b. Zinc or alumina coating
- c. Titanium or aluminium coating
- d. Silicon or SiC coating

No, the answer is incorrect.

Score: 0

Accepted Answers:

a. Aluminium or zinc coating

b. Zinc or alumina coating

13) Among flame spraying, HVOF spraying, wire arc spraying and air plasma spraying, which one offers maximum bond strength of the coating? **1 point**

- a. Flame spraying

- b. HVOF spraying
- c. Wear arc spraying
- d. Air plasma spraying

No, the answer is incorrect.

Score: 0

Accepted Answers:

b. HVOF spraying

14) Among flame spraying, HVOF spraying, wear arc spraying and air plasma spraying, which one needs maximum temperature in the spray nozzle? **1 point**

- a. Flame spraying
- b. HVOF spraying
- c. Wire arc spraying
- d. Air plasma spraying

No, the answer is incorrect.

Score: 0

Accepted Answers:

d. Air plasma spraying

15) Thermal barrier coating is applied for high temperature application because it acts as: **1 point**

- a. An insulating layer which reduces the effective working temperature of the components in service
- b. Anti corrosive coating for aqueous corrosion application
- c. Wear resistance coating for improving wear resistance
- d. Anodic coating for corrosion protection

No, the answer is incorrect.

Score: 0

Accepted Answers:

a. An insulating layer which reduces the effective working temperature of the components in service

16) Which of the following coating is used as the top coating for thermal barrier application? **1 point**

- a. Yttria stabilized zirconia
- b. ZnO
- c. Cr_2O_3
- d. Alumina

No, the answer is incorrect.

Score: 0

Accepted Answers:

a. Yttria stabilized zirconia

17) The purpose of bond coating below Thermal Barrier Coating is to: **1 point**

- a. Improve the high temperature erosion resistance
- b. Accommodate the thermal stress in service and improve adhesion of coating
- c. Increase the thermal insulation further
- d. Reduce thermal conductivity of the coating

No, the answer is incorrect.

Score: 0

Accepted Answers:

b. Accommodate the thermal stress in service and improve adhesion of coating

18) Which of the following coating may be applied for improving the biocompatibility of Ti-6Al-4V? **1 point**

- a. Hydroxyapatite
- b. ZnO
- c. CaO
- d. TiO₂

No, the answer is incorrect.

Score: 0

Accepted Answers:

- a. Hydroxyapatite*
- d. TiO₂*

19) For improving the biocompatibility which of the following properties may be taken into consideration? **1 point**

- a. Bioactivity
- b. Tensile strength
- c. Impact strength
- d. Wear resistance

No, the answer is incorrect.

Score: 0

Accepted Answers:

- a. Bioactivity*

20) Which one of the following supplementary thermal spray deposition technique would offer the maximum improvement in corrosion resistance property of Zn deposited steel substrate? **1 point**

- a. Flame spraying
- b. Wear arc spraying
- c. HVOF spraying
- d. Diffusion coating

No, the answer is incorrect.

Score: 0

Accepted Answers:

- c. HVOF spraying*

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