



Answer all the questions below then check your answers.

1. What is a common barrier method used to prevent corrosion?
A) Painting B) Heating C) Cooling D) Welding
2. Fill in the gap to complete the sentence:
 - a. Galvanizing is the process of coating iron or steel with a layer of _____.
3. Which of the following metals is often used in sacrificial protection?
A) Gold B) Magnesium C) Silver D) Platinum
4. Fill in the gap to complete the sentence:
 - a. Oil and grease are used as _____ methods to prevent corrosion.
5. What is added to metals to create alloys that resist corrosion?
A) Plastics B) Other metals C) Wood D) Rubber
6. Explain briefly: Why is painting an effective method to prevent corrosion?

7. Fill in the gaps to complete the sentence below:

Sacrificial protection involves attaching a more _____ metal to the protected metal. This reactive metal _____ instead of the protected metal.

8. Describe: How does galvanizing protect steel from corrosion?

9. Explain: How does the use of alloys help in preventing corrosion?

10. Explain in detail: How does sacrificial protection work to prevent corrosion in ships and underground pipes?

11. Matching Type: Match the following methods with their descriptions:

Method	Description
Painting	Applying a plastic layer to prevent exposure to moisture
Plastic coating	Coating with a layer to isolate from environment
Oil and grease	Using a more reactive metal to corrode instead
Galvanizing	Coating with a layer of zinc to provide protection
Sacrificial protection	Using lubricants to form a protective barrier

12. Discuss the advantages and disadvantages of using sacrificial protection and galvanizing to prevent corrosion on an oil rig.

Answers

1. What is a common barrier method used to prevent corrosion?

- A) Painting B) Heating C) Cooling D) Welding

Answer: A) Painting

2. Fill in the gap to complete the sentence:

a. Galvanizing is the process of coating iron or steel with a layer of _____.

Answer: Zinc

3. Which of the following metals is often used in sacrificial protection?

- A) Gold B) Magnesium C) Silver D) Platinum

Answer: B) Magnesium

4. Fill in the gap to complete the sentence:

a. Oil and grease are used as _____ methods to prevent corrosion.

Answer: Barrier

5. What is added to metals to create alloys that resist corrosion?

- A) Plastics B) Other metals C) Wood D) Rubber

Answer: B) Other metals

6. Explain briefly: Why is painting an effective method to prevent corrosion?

Answer: Painting provides a protective coating that isolates the metal from environmental factors such as moisture and oxygen, which are necessary for corrosion to occur.

7. Fill in the gaps to complete the sentence below:

Sacrificial protection involves attaching a more _____ metal to the protected metal. This reactive metal _____ instead of the protected metal.

Answers: reactive, corrodes

8. Describe: How does galvanizing protect steel from corrosion?

Answer: Galvanizing involves coating steel with a layer of zinc. Zinc is more reactive than steel and corrodes in place of the steel. This protective layer prevents moisture and oxygen from reaching the steel surface. Even if the zinc coating is scratched, it continues to protect the steel through sacrificial protection.

9. Explain: How does the use of alloys help in preventing corrosion?

Answer: Alloys are created by mixing a metal with other elements to improve its properties, including corrosion resistance. For example, stainless steel is an alloy of iron with chromium and nickel, which forms a protective oxide layer on the surface, preventing further corrosion.

10. Explain in detail: How does sacrificial protection work to prevent corrosion in ships and underground pipes?

Answer: Sacrificial protection works by attaching a more reactive metal, such as magnesium or zinc, to the structure needing protection, like a ship's hull or an underground pipe. These sacrificial anodes/metal corrode preferentially because they are more reactive, thereby protecting the less reactive metal of the ship or pipe. This process continues as long as the sacrificial metal is present, effectively preventing corrosion of the protected structure.

11. Matching Type: Match the following methods with their descriptions:

Method	Description
Painting	Applying a plastic layer to prevent exposure to moisture
Plastic coating	Coating with a layer to isolate from environment
Oil and grease	Using a more reactive metal to corrode instead
Galvanizing	Coating with a layer of zinc to provide protection
Sacrificial protection	Using lubricants to form a protective barrier

12. Discuss the advantages and disadvantages of using sacrificial protection and galvanizing to prevent corrosion on an oil rig.

Answer: Sacrificial protection involves attaching more reactive metals like zinc or magnesium to the oil rig structure, which corrode instead of the steel, offering continuous protection as long as the metal remains. It is relatively easy to install and can protect complex structures. However, it requires regular maintenance and replacement of the sacrificial metal, which can be costly and challenging in remote locations.

Galvanising involves coating the oil rig's steel components with a layer of zinc. This method provides a long-lasting protective layer that is maintenance-free for several years, protecting even when scratched due to the sacrificial nature of zinc. However, the initial cost is higher, and the process may be impractical for very large or already installed structures.