



Answer all the questions below then check your answers.

- 1. What is an alloy?*
- 2. Name one advantage of alloys over pure metals.*
- 3. What is the primary use of bronze?*
- 4. Which element is added to iron to make stainless steel?*
- 5. What is the composition of 24-carat gold?*
- 6. Explain why alloys are often used instead of pure metals in construction.*
- 7. What are the main components of brass, and what is one of its common uses?*
- 8. Describe two physical properties of mild steel and give one common use.*
- 9. Compare the composition and one use of 18-carat gold and 9-carat gold.*
- 10. Discuss the differences between alloy steels and mild steel in terms of composition and applications.*



11. Explain the advantages of using aluminium alloys over pure aluminium in industrial applications. Provide examples of their uses.

12. Which of the following is not an advantage of alloys over pure metals?

a) Increased strength b) Better corrosion resistance

c) Higher melting point d) Increased brittleness

13. Which alloy is primarily used for making coins?

a) Bronze b) Brass c) Alloy steel d) Mild steel

14. Fill in the Gaps to complete the questions below:

a. Bronze is an alloy made primarily of _____ and tin.

b. Stainless steel contains iron, _____, and nickel to prevent corrosion.

Extension question – might require some research

15. Explain how the addition of chromium and nickel to steel creates stainless steel, and discuss its applications and benefits.

16. Compare and contrast the properties and uses of three different types of gold alloys: 24-carat, 18-carat, and 9-carat gold.

Answers

1. What is an alloy?

An alloy is a mixture of two or more elements, where at least one is a metal.

b. Sorry but I have no idea what alloys are used to make Iron man's suit, if you find out message me!!!! Maybe titanium alloys?

2. Name one advantage of alloys over pure metals.

Alloys are generally stronger and harder than pure metals.

3. What is the primary use of bronze?

Bronze is commonly used in making statues and medals.

4. Which element is added to iron to make stainless steel?

Chromium and a little nickel

5. What is the composition of 24-carat gold?

24-carat gold is pure gold.

6. Explain why alloys are often used instead of pure metals in construction.

Alloys are used because they are often stronger, more durable, and more resistant to corrosion than pure metals.

7. What are the main components of brass, and what is one of its common uses?

Brass is made from copper and zinc. It is commonly used in musical instruments and decorative items such as costume jewellery and for the pins in electrical plugs..

8. Describe two physical properties of mild steel and give one common use.

Mild steel is ductile and malleable. It is commonly used in construction, such as in the framework of buildings and bridges.

9. Compare the composition and one use of 18-carat gold and 9-carat gold.

18-carat gold contains 75% gold, while 9-carat gold contains 37.5% gold. 18-carat gold is often used in high-quality jewellery, while 9-carat gold is used in more affordable jewellery.

10. Discuss the differences between alloy steels and mild steel in terms of composition and applications.

Alloy steels contain additional elements such as chromium, nickel, or molybdenum, which provide specific properties like increased strength, hardness, or corrosion resistance. Alloy steels are used in tools, machinery, and automotive parts. Mild steel, mainly composed of iron and a small percentage of carbon, is more ductile and malleable, making it suitable for construction and structural applications. Alloy steels are generally heavier than mild steels but much more resistant to corrosion.

11. Explain the advantages of using aluminium alloys over pure aluminium in industrial applications. Provide examples of their uses.

Aluminium alloys are stronger and more durable than pure aluminium, while still being lightweight. These alloys often have better corrosion resistance and improved hardness and strength. They are used in aerospace for aircraft structures, in the automotive industry for lightweight vehicle components, and in packaging for durable containers such as fast food containers.

12. Which of the following is not an advantage of alloys over pure metals?

- a) Increased strength
- b) Better corrosion resistance
- c) Higher melting point
- d) Increased brittleness

Answer: d) Increased brittleness

13. Which alloy is primarily used for making coins?

- a) Bronze
- b) Brass
- c) Alloy steel
- d) Mild steel

Answer: a) mild steel

14. Fill in the Gaps to complete the questions below:

a. Bronze is an alloy made primarily of _____ and tin.

Answer: Copper

b. Stainless steel contains iron, _____, and nickel to prevent corrosion.

Answer: Chromium

Extension question- might require some research

15. Explain how the addition of chromium and nickel to steel creates stainless steel, and discuss its applications and benefits.

The addition of chromium to steel forms a thin layer of chromium oxide on the surface, which prevents further oxidation and corrosion. Nickel adds to the hardness and strength of the steel. Stainless steel is used in kitchen utensils, medical instruments, and construction due to its corrosion resistance, durability, and ease of cleaning.

16. Compare and contrast the properties and uses of three different types of gold alloys: 24-carat, 18-carat, and 9-carat gold.

24-carat gold is pure gold, very soft and malleable, used in high-value jewellery and investments. 18-carat gold contains 75% gold, making it harder and more suitable for everyday jewellery. 9-carat gold, with 37.5% gold, is even harder and more durable, used in affordable jewellery. The differences in gold content affect the alloy's hardness, durability, and colour.