

Scientific Numismatics: Advanced Principles

Numismatics · Practice Test · 25 Questions

1. Which specific chemical phenomenon causes the 'verdigris' patina found on copper-based ancient coinage exposed to acetic acid or atmospheric pollutants?

- A) Formation of copper(II) carbonate
- B) Oxidation to copper(II) oxide
- C) Formation of copper(II) acetate
- D) Reduction of copper(I) sulfide

2. What is the primary scientific purpose of 'die axis' orientation analysis in numismatic research?

- A) Determining the market value of the coin
- B) Identifying the minting workshop's physical alignment
- C) Detecting the presence of trace elements in the alloy
- D) Establishing the chronological sequence of coin striking

3. In the context of numismatic metallurgy, what does the term 'flan' specifically refer to in the production process?

- A) The decorative rim of the coin
- B) The prepared metal disc before striking
- C) The die used to impress the design
- D) The chemical cleaning agent for gold coins

4. What diagnostic method do numismatists use to determine the exact elemental composition of a coin without damaging the surface?

- A) Destructive acid titration
- B) X-ray fluorescence (XRF) spectrometry
- C) Micro-scratch hardness testing
- D) Thermal gravimetric analysis

5. The phenomenon of 'die doubling' on a coin's surface is scientifically attributed to which process error?

- A) Excessive heating of the planchet
- B) Mechanical misalignment during the hubbing process
- C) Chemical corrosion of the steel die
- D) Rapid cooling of the blank during casting

6. Which term describes the scientific study of the weight standards and systems used in ancient currency?

- A) Metrology
- B) Epigraphy
- C) Sigillography
- D) Palaeography

7. What is the 'ser-i-sikka' in the context of historical Islamic coinage?

- A) The official weight standard of the Caliphate
- B) The administrative record of the minting process
- C) The specific chemical composition of the alloy
- D) The inclusion of the ruler's name in the khutba

8. What causes the characteristic 'crescent-shaped' edge cracks sometimes seen on ancient hammered silver coins?

- A) Over-striking with excessive pressure
- B) Brittle fracture due to impurity segregation at the edge
- C) Chemical oxidation of the coin rim
- D) Cooling the coin in liquid nitrogen

9. In numismatics, what is 'billon' technically defined as?

- A) A pure copper alloy
- B) An alloy of silver with a high base metal content
- C) A gold-plated iron core
- D) A non-metallic ceramic composite

10. What was the primary function of the 'a secco' technique in the context of ancient minting?

- A) Polishing the dies with abrasive sand
- B) Striking coins without heating the planchet
- C) Applying protective enamel coatings
- D) Engraving the reverse die with a stylus

11. Which mineral impurity, when found in ancient gold coins, is often used by scientists to trace the geographic origin of the ore?

- A) Platinum group elements (PGEs)
- B) Sodium chloride
- C) Calcium sulfate
- D) Iron pyrite

12. The 'Ewing Effect' in numismatic documentation refers to:

- A) The psychological impact of rare coin ownership
- B) The correlation between coinage volume and inflation rates
- C) The identification of forgery via microscopic tool marks
- D) The chemical degradation of copper-nickel alloys

13. What is the significance of the 'sullage' found in the archaeological discovery of hoards?

- A) The monetary value of the hoard
- B) Organic matter preserved with coins that provides dating context
- C) The chemical residue left by bronze corrosion
- D) The secondary striking of base metals

14. Which technique is used to determine the exact density of a coin to verify its metallic composition?

- A) Hydrostatic weighing
- B) Surface tension analysis
- C) Coulometric titration
- D) Refractive index measurement

15. What causes 'die rust' which appears as pitting on the surface of a coin?

- A) Exposure of the hardened steel die to moisture
- B) Oxidation of the blank before striking
- C) Repeated use of the hammer on the die
- D) Application of acidic pickling solutions

16. Which metallurgical term describes the process of heating a coin to remove internal stresses before striking?

- A) Annealing
- B) Quenching
- C) Tempering
- D) Smelting

17. The 'Gresham's Law' describes which economic phenomenon regarding currency?

- A) Bad money drives out good money
- B) Gold coins will always appreciate in value
- C) Minting costs exceed the face value of the coin
- D) Inflation is caused by increased coin supply

18. What specific chemical reaction occurs when silver coins turn black due to exposure to sulfur in the atmosphere?

- A) Formation of silver sulfide
- B) Oxidation to silver oxide
- C) Hydration of the silver surface
- D) Chlorination of the silver structure

19. What is the scientific function of a 'collar' in modern minting?

- A) To add security features to the edge
- B) To prevent the metal from expanding laterally during striking
- C) To protect the die from wear
- D) To hold the coin in the heating kiln

20. In numismatics, what are 'brockages'?

- A) Coins minted with two reverse dies
- B) Coins resulting from a strike where a coin sticks to the die
- C) Coins made of counterfeit alloys
- D) Coins missing the portrait side

21. Which unit was traditionally used to measure the purity of gold in ancient coinage?

- A) Karat
- B) Carat
- C) Grain
- D) Gram

22. What does the study of 'provenance' in numismatics rely upon?

- A) Documented chain of custody and historical records
- B) Scientific analysis of the coin's chemical smell
- C) Subjective aesthetic appraisal
- D) The monetary inflation at the time of striking

23. Why is lead often found in ancient silver-copper alloys?

- A) It was added intentionally to improve fluidity during casting
- B) It was a byproduct of the smelting of argentiferous galena
- C) It was used to increase the coin's weight for trade
- D) It was added to prevent the silver from tarnishing

24. What is the primary difference between a 'cast' forgery and a 'struck' original coin?

- A) Cast coins lack the high-pressure metal flow lines present in struck coins
- B) Cast coins are heavier than struck coins
- C) Struck coins have porous surfaces while cast coins are smooth
- D) Cast coins contain higher levels of gold

25. Which scientific analysis identifies the presence of traces of copper within an ancient silver coin to infer the extraction process?

- A) Lead isotope analysis
- B) Carbon-14 dating
- C) Mass spectrometry of trace impurities
- D) Thermography