

Biological Codes and Ciphers

Bioinformatics And Anatomy · Answer Key · 18 Questions

1. Which molecule acts as the primary 'code' for storing hereditary information in humans?

- A) RNA
- B) DNA**
- C) ATP
- D) Hemoglobin

2. What is the standard system used internationally for classifying and coding medical diagnoses?

- A) ICD**
- B) DNA-seq
- C) BLAST
- D) HTTP

3. In the genetic code, a sequence of three nucleotides, known as a codon, specifies which building block of proteins?

- A) Glucose
- B) Amino acid**
- C) Fatty acid
- D) Vitamin

4. Which nucleotide base pairs specifically with Adenine (A) in the DNA double helix structure?

- A) Cytosine
- B) Guanine
- C) Thymine**
- D) Uracil

5. What medical coding system is specifically used in Australia to classify clinical procedures?

- A) ACHI**
- B) DSM-5
- C) SNOMED
- D) LOINC

6. Which process involves decoding messenger RNA into a polypeptide chain?

- A) Replication
- B) Transcription
- C) Translation**
- D) Mutation

7. In the context of the human nervous system, what is the 'cipher' or method used for transmitting signals between neurons?

- A) Binary code
- B) Action potentials**
- C) Fiber optics
- D) Radio waves

8. Which component of the human genome is considered the 'non-coding' region, despite its role in regulation?

- A) Exons
- B) Introns**
- C) Ribosomes
- D) Codons

9. What biological molecule performs the task of transcribing DNA into mRNA?

- A) DNA polymerase
- B) RNA polymerase**
- C) Helicase
- D) Ligase

10. The Human Genome Project successfully 'decoded' the sequence of how many base pairs?

- A) 1 million
- B) 3 billion**
- C) 100 billion
- D) 500 thousand

11. Which international coding standard is used to encode clinical medical terms for electronic health records?

- A) SNOMED CT**
- B) Morse Code
- C) ASCII
- D) Base64

12. How many total pairs of chromosomes are typically found in a standard human somatic cell?

- A) 22
- B) 23**
- C) 46
- D) 48

13. Which substance in the blood uses a 'code' of surface proteins to determine a person's ABO blood group?

- A) Plasma
- B) Red blood cells**
- C) Platelets
- D) White blood cells

14. What is the primary function of the mitochondrial DNA, which is inherited differently than nuclear DNA?

- A) Cellular respiration**
- B) Protein synthesis
- C) Cell division
- D) Signal transduction

15. In immunology, what 'cipher' do B-cells use to identify specific pathogens?

- A) Antigens
- B) Antibodies**
- C) Histamines
- D) Platelets

16. Which nitrogenous base is replaced by Uracil during the transcription of RNA?

- A) Adenine
- B) Guanine
- C) Thymine**
- D) Cytosine

17. What term describes a permanent change in the DNA sequence 'code' that can be inherited?

- A) Translation
- B) Mutation**
- C) Expression
- D) Transcription

18. What structure acts as the 'decoder' or reader of mRNA during protein synthesis within the cell?

- A) Ribosome**
- B) Nucleus
- C) Lysosome
- D) Mitochondrion