Biological Codes and Ciphers

Bioinformatics And Anatomy · Practice Test · 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