

NEET MOLECULAR BASIS OF INHERITANCE — GENETIC CODE AND TRNA — PYQS

Max. Marks: 92

Questions: 23

Section A (MCQ) — 23 questions

Q.1 Who proposed that the genetic code for amino acids should be made up of three nucleotides?

[NEET (UG) 2025]

- (1) Jacques Monod (2) Franklin Stahl
(3) George Gamow (4) Francis Crick

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Q.2 Against the codon 5' UAC 3', what would be the sequence of anticodon on tRNA?

[NEET (UG) 2022 (Phase 2)]

- (1) 5' GUA 3' (2) 5' AUG 3'
(3) 5' ATG 3' (4) 5' GTA 3'

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Q.3 **Statement-I:** The codon 'AUG' codes for methionine and phenylalanine.

Statement-II: 'AAA' and 'AAG' both codons code for the amino acid lysine.

In the light of the above statements, choose the correct answer from the options given below.

[NEET (UG) 2021]

- (1) Statement-I is incorrect but Statement-II is true
(2) Both Statement-I and Statement-II are true
(3) Both Statement-I and Statement-II are false
(4) Statement-I is correct but Statement-II is false

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Q.4 Under which of the following conditions will there be no change in the reading frame of following mRNA?

5' AACAGCGGUGCUAUU 3' [NEET (UG) 2019]

- (1) Insertion of A and G at 4th and 5th positions respectively
(2) Deletion of GGU from 7th, 8th and 9th positions
(3) Insertion of G at 5th position
(4) Deletion of G from 5th position

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Q.5 Which of the following features of genetic code does allow bacteria to produce human insulin by recombinant DNA technology? [NEET (UG) 2019]

- (1) Genetic code is nearly universal
(2) Genetic code is specific
(3) Genetic code is not ambiguous
(4) Genetic code is redundant

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Q.6 If there are 999 bases in an RNA that codes for a protein with 333 amino acids, and the base at position 901 is deleted such that the length of the RNA becomes 998 bases, how many codons will be altered? [NEET 2017]

- (1) 1 (2) 11 (3) 333 (4) 33

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Q.7 Which one of the following is the starter codon?

[NEET 2016 (Phase 1)]

- (1) AUG (2) UAG (3) UAA (4) UGA

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Q.8 Which of the following is not a property of the genetic code? [NEET 2013 (Karnataka)]

- (1) Ambiguous (2) Universal
(3) Degeneracy (4) Non-overlapping

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Q.9 The one aspect which is not a salient feature of genetic code, is its being — [AIPMT 2010 (Prelims)]

- (1) Specific (2) Degenerate
(3) Ambiguous (4) Universal

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Q.10 Whose experiments cracked the DNA and discovered unequivocally that a genetic code is a "triplet"? [AIPMT 2009]

- (1) Nirenberg and Matthaei
- (2) Morgan and Sturtevant
- (3) Hershey and Chase
- (4) Beadle and Tatum

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Q.11 What is not true for genetic code? [AIPMT 2009]

- (1) It is nearly universal
- (2) A codon in mRNA is read in a noncontiguous fashion
- (3) It is degenerate
- (4) It is unambiguous

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Q.12 Which one of the following pairs of codons is correctly matched with their function or the signal for the particular amino acid? [AIPMT 2008]

- (1) UUA, UCA — Leucine
- (2) AUG, ACG — Start/Methionine
- (3) UAG, UGA — Stop
- (4) GUU, GCU — Alanine

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Q.13 One gene-one enzyme hypothesis was postulated by - [AIPMT 2006]

- (1) A. Garrod
- (2) Hershey and Chase
- (3) Beadle and Tatum
- (4) R. Franklin

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Q.14 Production of a human protein in bacteria by genetic engineering is possible because [AIPMT 2005]

- (1) The human chromosome can replicate in bacterial cell
- (2) The genetic code is universal
- (3) Bacterial cell can carry out the RNA splicing reactions
- (4) The mechanism of gene regulation is identical in humans and bacteria

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Q.15 Which form of RNA has a structure resembling clover leaf? [AIPMT 2004]

- (1) r-RNA
- (2) m-RNA
- (3) t-RNA
- (4) hn-RNA

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Q.16 What would happen if in a gene encoding a polypeptide of 50 amino acids, 25th codon (UAU) is mutated to UAA? [AIPMT 2003]

- (1) A polypeptide of 49 amino acids will be formed
- (2) A polypeptide of 25 amino acids will be formed
- (3) Two polypeptides of 24 and 25 amino acids will be formed
- (4) A polypeptide of 24 amino acids will be formed

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Q.17 Which one of the following triplet codes, is correctly matched with its specificity for an amino acid in protein synthesis or as 'start' or 'stop' codon? [AIPMT 2003]

- (1) UUU – Stop
- (2) UAC – Tyrosine
- (3) UGU – Leucine
- (4) UCG – Start

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Q.18 Degeneracy of a genetic code is attributed to the: [AIPMT 2003]

- (1) Second member of a codon
- (2) Third member of a codon
- (3) First member of a codon
- (4) Entire codon

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Q.19 In the genetic code dictionary, how many codons are used to code for all the 20 amino acids: [AIPMT 2003]

- (1) 64
- (2) 20
- (3) 60
- (4) 61

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Q.20 Out of 64 codons, 61 codons code for 20 types of amino acids; it is called : - [AIPMT 2002]

- (1) Wobbling of codon
- (2) Universality of codons
- (3) Overlapping of gene
- (4) Degeneracy of genetic code

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Q.21 Which of the following is initiation codon? [AIPMT 2000]

- (1) AUC
- (2) CCU
- (3) UAG
- (4) AUG

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Q.22 Anticodon occurs in: [AIPMT 2000]

- (1) DNA
- (2) r-RNA
- (3) t-RNA
- (4) m-RNA

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Q.23 In three dimensional view the molecule of t-RNA is:

[AIPMT 2000]

- (1) E-shaped (2) L-shaped
(3) S-shaped (4) Y-shaped

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full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	3	1	1	2	1	4	1	1	3	1	2
Ques.	12	13	14	15	16	17	18	19	20	21	22
Ans.	3	3	2	3	4	2	2	4	4	4	3
Ques.	23										
Ans.	2										