



QUESTION WORKBOOK

The genetic code and transcription

Nucleic acids, genomes and protein synthesis · Unit B05

AQA 3.4.2 · OCR A 2.1.3, 6.1.1 · Edexcel A Topic 2.8 · CAIE 6.2

5 questions · 18 marks

NAVY SCREEN EDITION

SECTION A · Short, 1 to 2 marks

- A1** State what is meant by saying that the genetic code is degenerate, and state what is meant by saying that it is non-overlapping. [2]

SECTION B · Standard, 3 to 5 marks

- B1** Describe how a molecule of pre-mRNA is produced from a gene in the nucleus of a eukaryotic cell. [5]

- B2** Explain why a mature mRNA molecule is shorter than the gene it was transcribed from, and explain how one gene can give rise to more than one polypeptide. [4]

B3 A single base is inserted into the coding sequence of a gene close to its start. The polypeptide produced is much shorter than normal and its amino acid sequence bears no relation to the original beyond the point of insertion. Suggest why, referring to two properties of the genetic code. [4]

B4 The coding strand of a short section of a gene reads GAT CCA TTG. Give the base sequence of the template strand, and give the base sequence of the mRNA transcribed from this section. [3]
