

# Self-test questions

## Topic 7

- 1 What is a nucleosome?
  - A a chain of ribosomes
  - B material inside the nuclear membrane
  - C DNA and histone proteins
  - D the core of DNA made of protein
- 2 Which of the following enzymes are involved in DNA replication?
  - i helicase
  - ii DNA gyrase
  - iii DNA primase
  - iv DNA polymerase I
  - A i only
  - B i and ii only
  - C ii and iii only
  - D i, ii, iii and iv
- 3 If the nucleotides in a double-stranded section of DNA were labelled with radioactive markers before replication, which strands in the two double-stranded DNA molecules produced after replication would be radioactive?
  - A none of them
  - B one strand in one new double helix
  - C one strand in each new double helix
  - D both strands in each new double helix
- 4 The promoter region is an example of:
  - A a region of non-coding DNA with a function
  - B a region of DNA that speeds up transcription
  - C a region of DNA that slows down transcription
  - D a region of non-coding DNA with no function
- 5 What is the outcome of mRNA splicing?
  - A longer strands of mRNA, which make longer polypeptides
  - B shorter strands of mRNA, which make shorter polypeptides
  - C an increase in the number of proteins that can be produced
  - D a decrease in the number of proteins that can be produced
- 6 Which of the following is a difference between the sense and antisense strands of DNA?
  - A The antisense strand has the same base sequence as tRNA but the sense strand does not.
  - B Nucleotides are linked to the antisense strand by hydrogen bonding during transcription, but not to the sense strand.
  - C The sense strand has the same base sequence as tRNA but the antisense strand does not.
  - D Nucleotides are linked to the sense strand by hydrogen bonding during transcription, but not to the antisense strand.
- 7 Which statement describes translation in prokaryotes?
  - A can occur immediately after transcription
  - B occurs before transcription
  - C occurs within the nucleus
  - D can occur either inside or outside the nucleus

- 8 What determines the primary structure of a protein?
- A the number and sequence of amino acids
  - B the number of amino acids and their R groups
  - C the formation of  $\alpha$  helices
  - D the formation of  $\alpha$  helices and  $\beta$  pleated sheets
- 9 Which of the following are important in stabilising tertiary structure:
- i hydrogen bonds
  - ii ionic bonds
  - iii active sites
  - iv interactions between R groups
- A i only
  - B ii and iii only
  - C i, ii and iv only
  - D i, ii, iii and iv
- 10 A prosthetic group may be found in:
- A an  $\alpha$  helix of a protein
  - B a  $\beta$  pleated sheet of a protein
  - C a disulfide bridge of a protein
  - D quaternary structure of a protein