Answers for support worksheet – Chapter 7

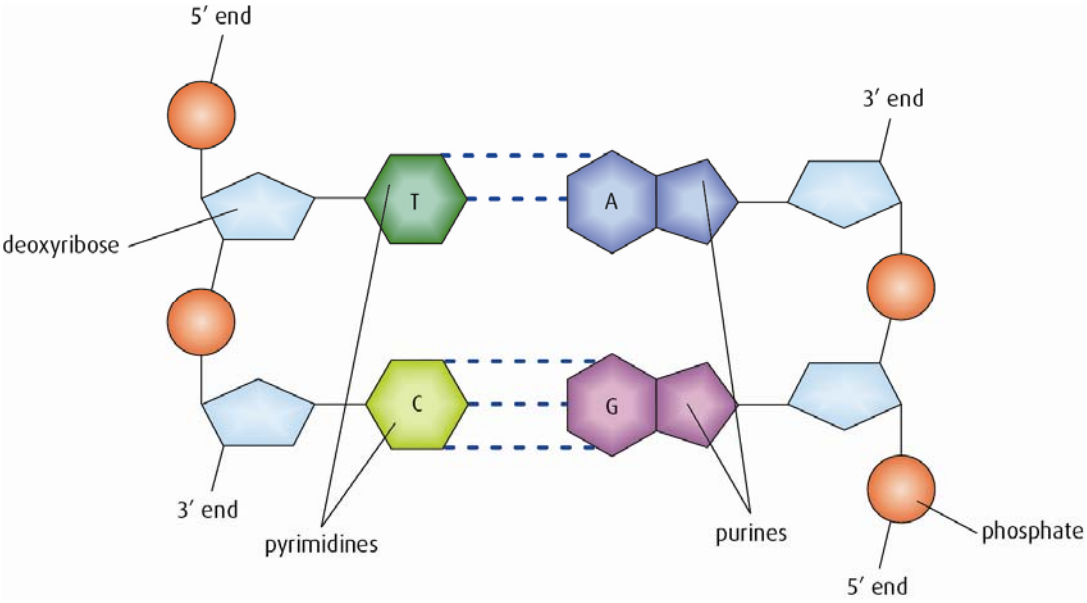
1 **a** Genes are small sections of DNA that code for **polypeptides**. (1)

b DNA bases are paired as follows: guanine with **cytosine** and **thymine** with adenine. (1)

c Chromosomes are **long** and made of **DNA and histone proteins**. (2)

d A nucleosome consists of **DNA** wrapped around **eight** histone proteins and **held in place by two further histones**. (3)

2 **a** (5)



b Antiparallel means that the two DNA strands run in opposite directions to one another. (1)

c During replication, the 5' end of a nucleotide is added to the 3' end of the chain of nucleotides that is being made. (1)

3 **A**, **E**, **G**, **C**, **D**, **F**, **B** (7)

4 (5)

Enzyme	**Function in DNA replication**
helicase	unwinds the double helix
RNA primase	synthesises RNA primers
DNA polymerase III	synthesises new DNA strand by adding nucleotides
DNA polymerase I	removes RNA primer and replaces it with DNA
DNA ligase	joins the ends of Okazaki fragments

5 **c** is false; all other statements are true. (6)

6 **a** Diagram A and graph C represent competitive inhibition. Diagram B and graph D represent non-competitive inhibition. (4)

b In graph C, the effect of the inhibitor is reduced as the concentration of the substrate increases.
In graph D, as the concentration of substrate is increased, the rate of reaction increases but does not reach the same level as without an inhibitor. The inhibitor does not compete for active sites so excess substrate does not overcome inhibition. (2)

