

**SMART EXAM RESOURCES**  
**TOPIC QUESTIONS: NUCLEIC ACID AND PROTEIN SYNTHESIS**  
**SUB-TOPIC: IMPORTANCE OF HYDROGEN BONDS IN DNA STRANDS**  
**SET-1-QP-MS**

- 1** The two strands of a DNA molecule are held together by hydrogen bonds between complementary base pairs.

Explain why the hydrogen bonding between the two strands of DNA is important for it to carry out its functions.

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.....[4]

## MARK SCHEME:

- 1 important in contributing to 3-D structure of molecule / AW ;
- 2 many hydrogen bonds so, gives stability / strands not easily separated / long lasting ;  
AW
- 3 (individual) hydrogen bonds (more) easily broken (than covalent bonds) ; **A**  
hydrogen bonds weak / hydrogen bonds can be broken  
  
*consequence*
- 4 (so strands can be separated) for (DNA) replication ; **A** description
- 5 (so strands can be separated) for (DNA) transcription ; **A** description
- 6 hydrogen bonds only form between, specific bases / named base pairs, so, few  
mistakes / faithful replication / AW ;
- 7 *idea that* hydrogen bonds can easily re-form (without chemical reaction) ; [max 4]