

AS Level Biology B

H022/01 Foundations of biology (Foundation Tier)

Question set 1

1 The molecule shown in Fig. 1 is one of the nucleotides found in ribonucleic acid (RNA).

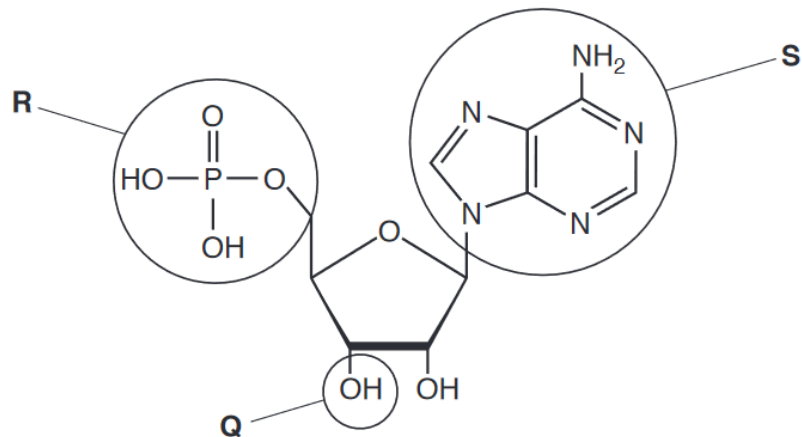


Fig. 1

(a) Parts of the molecule have been labelled Q, R and S.

Which part(s) of the molecule labelled in Fig. 1

(i) can form a phosphodiester bond with other nucleotides?

[1]

(ii) can join with phosphate groups to form ATP?

[1]

(iii) can form hydrogen bonds with another nucleotide?

[1]

(b) Describe how a nucleotide found in deoxyribonucleic acid would differ from the nucleotide shown in Fig. 1.

[1]

(c) The sequence of nucleotides in DNA provides the genetic code for synthesising proteins.

The genetic code can be described as universal because it is the same in almost all organisms.

Name and describe **other** features of the genetic code.

[4]

(d) DNA is an extremely stable molecule and has been extracted from Egyptian mummies and fossils.

(i) What feature of the DNA molecule provides stability?

[1]

(ii) Messenger RNA (mRNA) is the type of nucleic acid that carries the genetic information on DNA from the nucleus to the site of protein synthesis.

Unlike DNA, mRNA is relatively unstable and has a short life-span.

Suggest **one** advantage of mRNA being relatively unstable with a short life-span.

[1]

Total Marks for Question Set 1: 10



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