

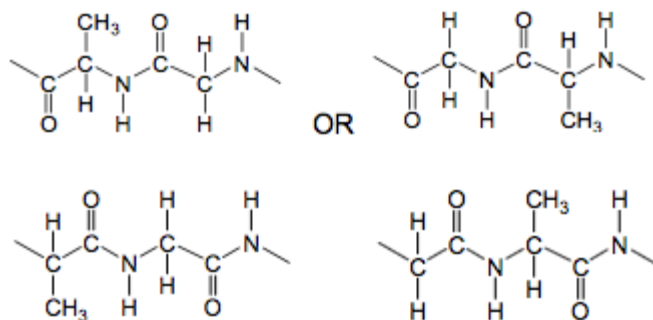
Name of the Student: _____

Max. Marks : 19 Marks

Time : 19 Minutes

Mark Schemes

Q1.



(a) (i)

Only one molecule of each used

M1 for 2 amide links

M2 CH₂ and CH(CH₃)

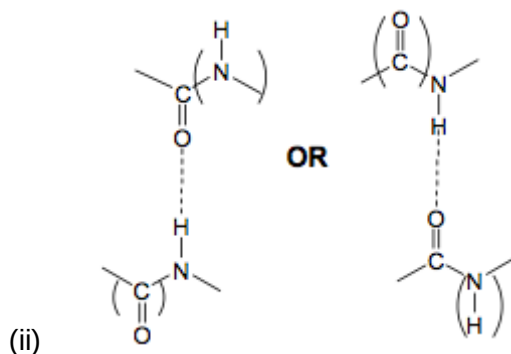
Allow 1 mark after one error

Dipeptide max 1

Treat both trailing bonds missing as one error

Ignore n

2

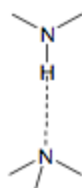


(ii)

No need to show lp

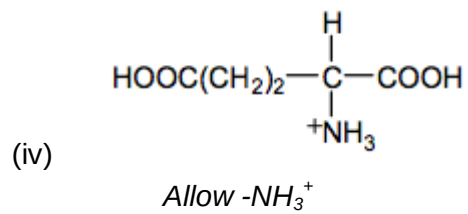
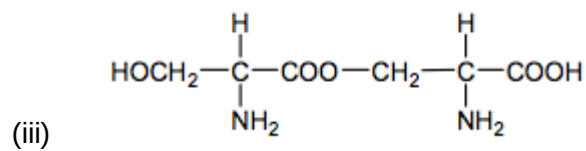
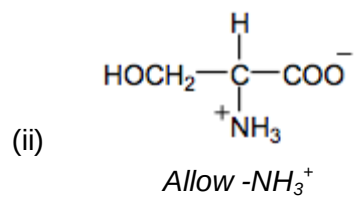
The covalent bond and the hydrogen bond either side of the H must be linear.

Allow



1

(b) (i) 2-amino-4-methylpentan(-1-)oic acid

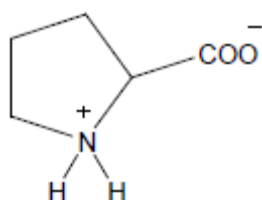


Q2.
c

[1]

Q3.

(a) (i)



Allow CO_2^- and NH_2^+

1

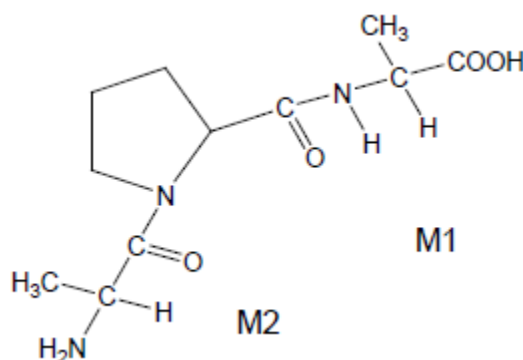
(ii) NOTE – **Two** marks for this clip

M1 for alanine section bonded through N

M2 for alanine section bonded through C

But penalise error in proline ring

1



Allow MAX 1 for correct tripeptide in polymer structure

1

(b) (i) 3-methylpent-2-ene

Ignore E-Z, commas, spaces or missing hyphens

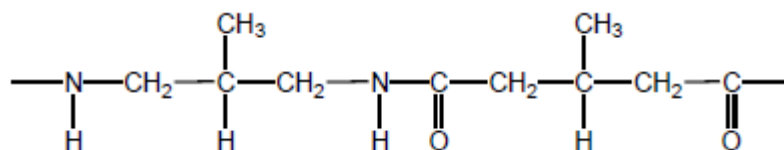
1

(ii) 4-amino-3-methylbutanoic acid

Ignore commas, spaces or missing hyphens

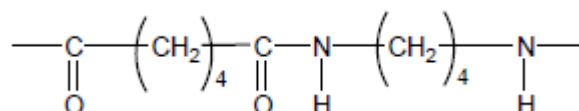
1

(iii)



or any polyamide section containing

8 carbons plus two C=O plus two N-H, such as

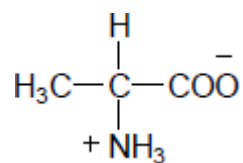


Trailing bonds are required

1

(iv) Non polar OR no polar groups / bonds (for attack by water / acids / alkalis / nucleophiles or for hydrolysis)

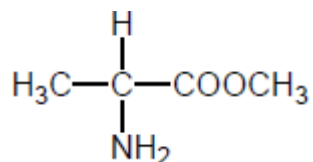
Q4.
(a)



Allow $-\text{NH}_3^+$ and $^+\text{NH}_3-$

1

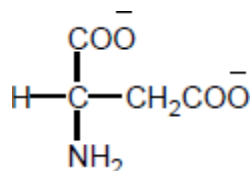
(b)



Allow protonated form, i.e. $-\text{NH}_3^+$ or $^+\text{NH}_3-$

1

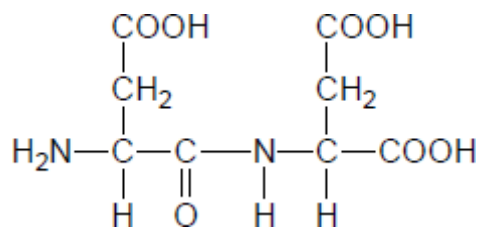
(c)



Allow $-\text{CO}_2^-$

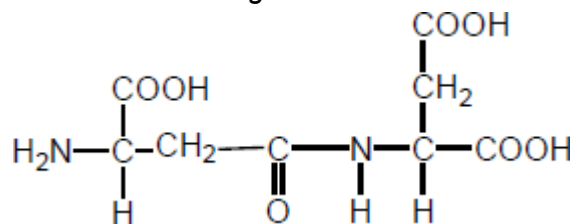
1

(d)



Allow zwitterion with any COO^-

Allow use of "wrong" COOH



1

[4]