Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Amines

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

(a) Step 1 Conc HNO_3

M1

Step 1 Conc H_2SO_4

If conc missing in both allow 1 for HNO_3 and H_2SO_4

M2

Step 2 Sn and HCl

*Allow Fe and HCl **or** Ni and H_2*

M3

(b) (nucleophilic) addition-elimination

1

(c) Chlorine

Allow Cl_2

M1

UV (light)

Allow sunlight / High temp (above 300°C)

M2

(d) In Step 5 further substitution / gives other amine products

1

In Step 2 only one amine

1

(e) In B Alkyl group is electron donating or positive inductive effect

Or In A lone pair (on N partially) delocalised

1

Lone pair <u>on N</u> more available

Lone pair <u>on N</u> less available

1

[10]

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Q2.

C

$[(C_2H_5)_2N(CH_3)_2]^+ Br^-$

[1]

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Q3.

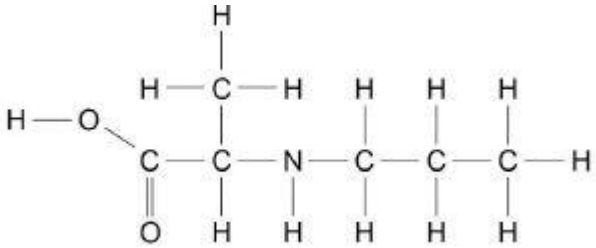
(a) One circled C atom only – The C attached to CH_3/C=O/ H and NH

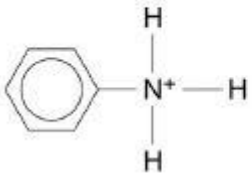
1

(b) Two ticks only for amine and amide

1

(c)

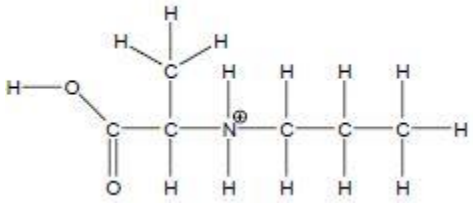




M1 *for choosing the correct bond to hydrolyse*

M2 *and* ***M3*** *for the correct structures of the products*

Allow protonated amino acid for M2



Allow $C_6H_5NH_3^+$ *or + outside a square bracket*

3

(d) **M1** Enzyme has an <u>active site</u>

1

M2

The G-Enantiomer / Enzyme has the correct stereo chemistry / stereospecific

Or

The G-Enantiomer / Enzyme has the complementary shape

For M2 allow opposite argument for F-Enantiomer

1

[7]

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