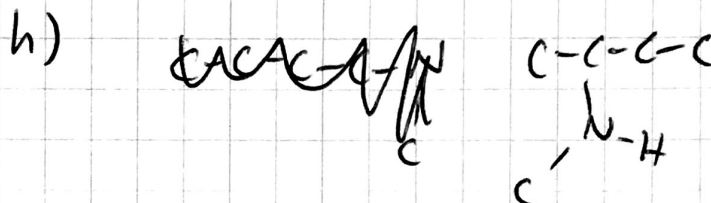
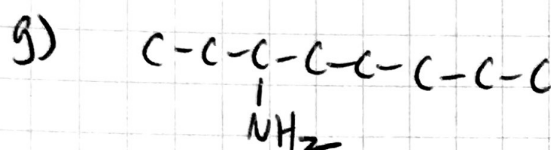
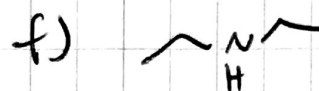
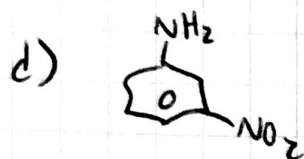
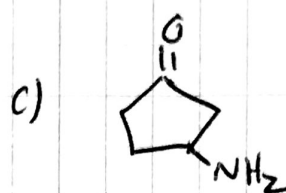
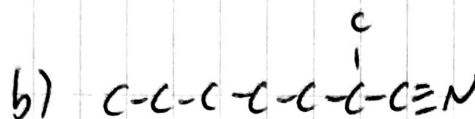
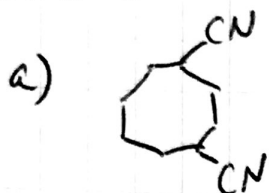


Ch 22

15



i) a) benzonitrile

b) ~~propanamine~~ propanamine

c) N-methylpropanamine

d) acetonitrile

or
ethanenitrile

e) butanenitrile

f) 1-cyanocyclobutane

g) 3-hexanamine

h) aniline

i) 3-methylpyrrole

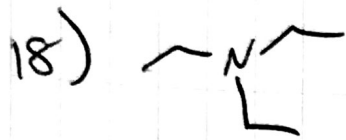
j) pyridine

k) cyclobutylamine or cyclobutanamine

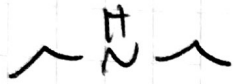
17) a) $-\text{NH}_2$ Primary amine b) Secondary amine

c) Amide

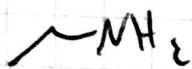
d) aromatic nitrile



NO N-H $\sim 3300 \text{ cm}^{-1}$



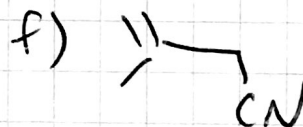
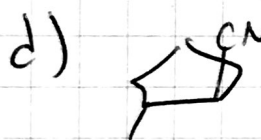
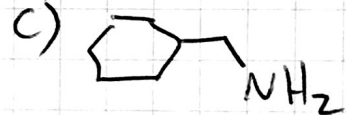
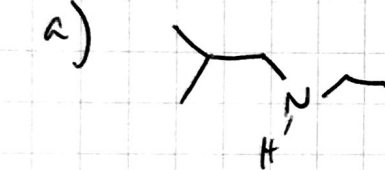
$\sim 3300 \text{ cm}^{-1}$
1 hump



WF 2 humps $\sim 3300 \text{ cm}^{-1}$

19) it is an odd m⁺ peak
(m/z)

20) SN2 RXNS



21) a) NaCN

b) H_2N ^{excess}

c) ^{excess} NH_3

22) a) Ph-CH2-CH2-NH2

b) Ph-CH2-CH2-NH2

c) Ph-CH2-CH2-NH2

d) c1ccccc1CN

e) Ph-CH2-NH-Ph

f) Nc1ccccc1N

22.

23.

