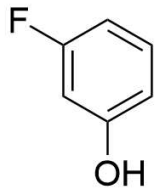
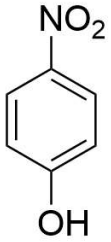
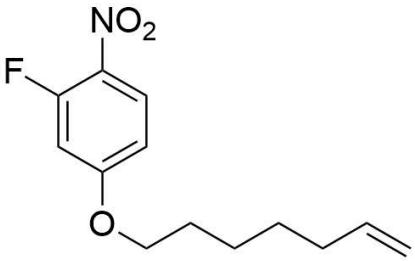
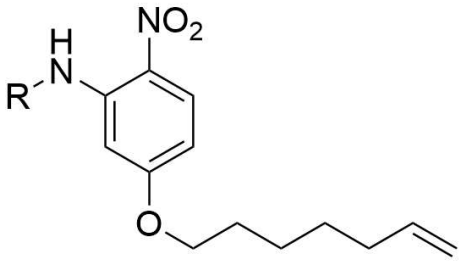
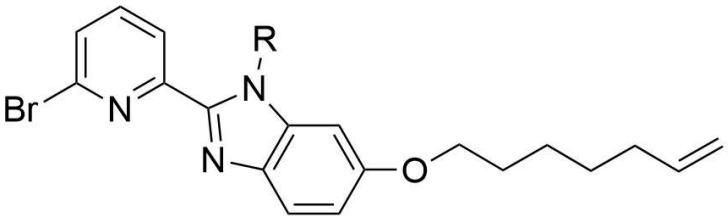
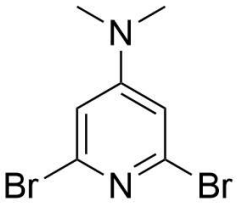
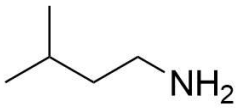
5.	This question is about making the smallest Chinese knot	Mark
(a)	(i) **A** 	☑
	(ii)  *Accept if not drawn linear.*	☑
(b)	**B** 	☑
(c)	(i) **C** 	☑
	(ii) **D** 	☑
(d)	**E** 	☑ ☑

G

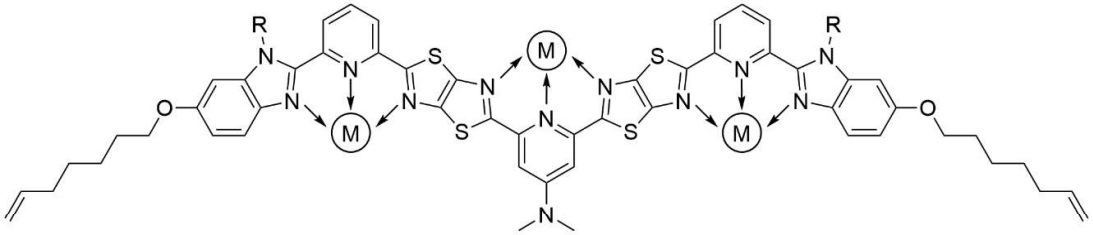


Also accept if Br exchanged for I.

(e)



(f)



Three metals one mark. All nine atoms coordinated correctly two marks.

(g)

tetrahedral	trigonal planar	square planar
octahedral ✔	square pyramidal	hexagonal planar

(h)

$\mathbf{M^{2+}} = Fe^{2+}$ and $\mathbf{X^-} = BF_4^-$

The iron(II) can be identified from the characteristic ion test result.

From the loss of mass when heating, the molecular mass can be obtained.

$6 \times 18.106 = 32.0\%$, therefore the total mass of complex = 337.8 g mol^{-1}

Mass of two anions = 337.8 – (6 × 18.106 + 55.85) g mol^{-1} = 173.314 g mol^{-1}

Mass of one anion = 86.657 g mol^{-1} (Mass of BF_4^- = 86.81 g mol^{-1})

One mark for Fe^{2+}. Two marks for BF_4^-. One of these two can be given for a mass of a single anion as 86.657 g mol^{-1}.

(i)

(i) Chinese knots ✔

Must be this answer only for mark.

(ii) Individual rings ✔ and Linear organic molecules ✔

Must be these two answers and no others for mark.

(iii) Two interlinked rings ✔ and Linear organic molecules ✔

Must be these two answers and no others for mark.

(iv) Chinese knots ✔

Must be this answer only for mark.

Total out of 19 **19**