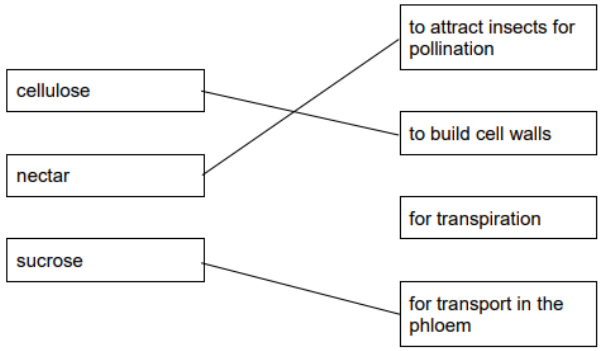
4. Biological molecules

4.1 Biological molecules

Paper 3 and 4

Marking Scheme

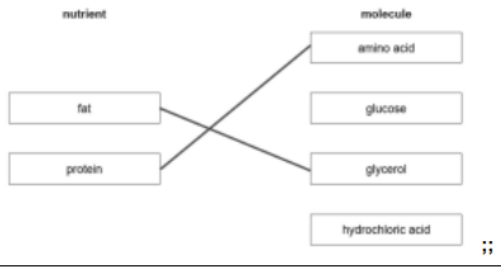
Q1.

(b)	*any three from:* it / the white part of the leaf, cannot photosynthesise ; no glucose is produced ; glucose is stored as starch ; iodine solution remains yellow-brown in the absence of starch / the white part does not contain starch / negative result for starch / AW ;	**3**	
(c)	yellow-brown ; yellow-brown ;	**2**	
(d)(i)		**3**	**R** each additional line
(d)(ii)	carbon, hydrogen, oxygen ;	**1**	any order **R** each additional element

Q2.

(d)	*any two from:* oxygen ; hydrogen ; nitrogen ;	**2**	

Q3.

(b)	 ;;	**2**	one mark for each correct line **R** each additional line

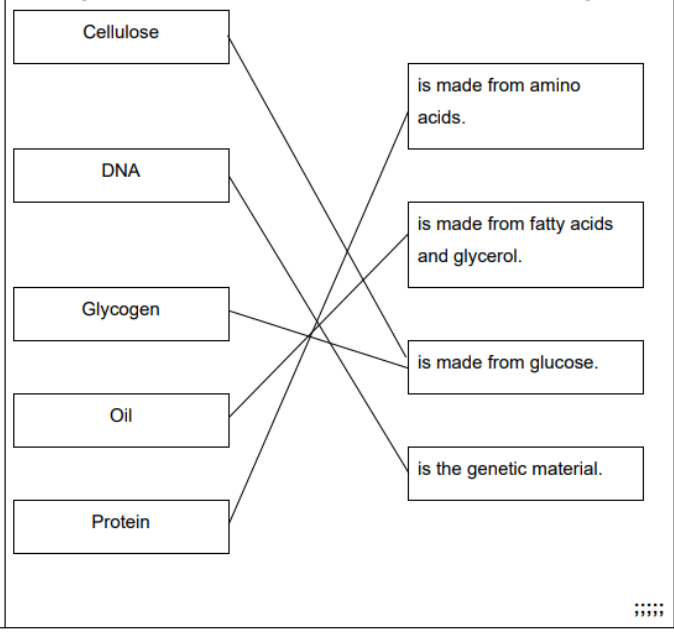
Q4.

(c)(i)	starch ; cellulose ;	2	
(c)(ii)	<table><tr><th>glucose</th><th>protein</th></tr><tr><td>carbon hydrogen oxygen ;</td><td>carbon hydrogen oxygen nitrogen ;</td></tr></table>	2	one mark for correct elements in glucose one mark for correct elements in protein **R** additional elements in each list

Q5.

(a)(i)	carbon, hydrogen, oxygen ;	1	
(a)(ii)	nitrogen ;	1	

Q6.

(c)		5	one mark for each correct line **R** each additional line

Q7.

(c)	C H O ; N ;	**2**	

Q8.

	carbon ; oxygen ; nitrogen ; carbohydrate ; glycogen ; starch ; cellulose ;	**7**	carbon and oxygen in either order

Q9.

(e)	*any two from:* transport (of ions / sucrose / AW) / translocation ; as a reactant / (used in) photosynthesis ; as a solvent / substances dissolve in it ; medium for, chemical / enzyme / metabolic, reactions ; support / (maintaining) turgidity (of cells) / (maintaining) turgor pressure / prevent wilting ; AVP ;	**2**	e.g. cooling / temperature regulation / germination / elongation of cells (in growth)

Q10.

(a)	*any four from:* two strands ; formed into (double) helix ; ref. to four bases / A and T and C and G ; pairing of, A with T / C with G ; cross links between bases ;	**4**	**A** as an annotated drawing