

1 (a)	<i>glucose</i> – R ; <i>oxygen</i> – Q ; <i>urea</i> – P ;	[3]	
(b)	amino acids used to make proteins ; deamination ; removal of, nitrogen-containing group / amino group / amine group / AW ; formation of urea ; rest of molecule / carbohydrate, is, respired / stored as glycogen / converted to fat / used for energy ;	[max 3]	R the liver produces amino acids
(c) (i)	(stimulates liver cells to) absorb <u>more</u> glucose ; A sugar store / convert, glucose ; to glycogen (for storage) ;	[max 2]	
(ii)	(stimulates liver cells to) breakdown glycogen ; to glucose ; release glucose ;	[max 2]	A convert to / AW
(iii)	fatty liver / build up of fat deposits ; hepatitis ; fibrous tissue ; cirrhosis ; liver cancer ; liver failure ;	[max 2]	
(d)	1 bile contains bile salts ; 2 <u>emulsify</u> (fats) / <u>emulsification</u> (of fats) ; 3 break large globules of fat into smaller globules / AW ; 4 mechanical / physical, digestion ; 5 increases surface area ; 6 for digestion by lipase ; 7 (chemical) digestion of fat, takes longer / is harder ;	[max 4]	
[Total: 16]			

Question	E	Answers	Marks	Additional Guidance
2	(a)	(has been through) <u>capillaries</u> (in organs/named organ(s)) ; (has been through) an organ / named organ (beforehand) ; lost oxygen to, (named respiring) tissues / (named) organs / cells / AW ;	2	
	(b)	oesophagus ; stomach ; gall bladder ; duodenum ; ileum ; pancreas ; colon / large intestine / rectum ;	4	Accept small intestine as alternative to duodenum and ileum
	(c)	glucose, amino acids ; (named) vitamin(s) / (named) mineral(s) ; in solution / soluble / in the plasma ; transported from, small intestine / duodenum / ileum site of absorption ; to liver ;	max 3	
	(d)	<i>to max 4</i> (when a) high glucose concentration , glucose converted to <u>glycogen</u> ; low glucose concentration , <u>glycogen</u> converted to glucose ; ref to correct role of, insulin / glucagon ; makes plasma proteins ; excess amino acids , deaminated / described ; <i>to max 3</i> alcohol, broken down / respired / metabolised ; named toxin, broken down ; R toxin unqualified	max 5	

2	(e)	<p><i>phagocytes to max 3</i></p> <p>1 ingest / engulf , bacteria / pathogens / viruses ; R 'eat'</p> <p>2 digest / destroy (bacteria / pathogens / viruses) ;</p> <p>3 using enzymes ;</p> <p>4 any further detail ;</p> <p><i>lymphocytes to max 3</i></p> <p>5 make / produce / secrete / release, antibodies ;</p> <p>6 <i>idea of specificity</i> / lymphocytes respond to particular pathogen <i>or</i> antigen ;</p> <p>7 effect of antibodies described;</p> <p>8 AVP ;</p>	max 4	AVP for either cell type, could be additional point about antibodies
[Total: 18]				

Question	E	Answers	Marks	Additional Guidance
3	(a)	<p>A left atrium ;</p> <p>B mitral / bicuspid / atrioventricular, <u>valve</u> ;</p> <p>C semi-lunar <u>valve</u> / pocket <u>valve</u> / aortic <u>valve</u> ;</p> <p>D right ventricle ;</p>	[4]	<p><i>reject if correct and incorrect answers given for each</i></p> <p>A atria</p> <p>A auricle A 'oracle' / 'oricle'</p> <p>A if given the plural</p> <p>A if given the plural, A 'half-moon' valve</p>
	(b)	<p>E (superior / anterior) vena cava ;</p> <p>F aorta ;</p>	[2]	
	(c)	<p>coronary ;</p> <p>1 fatty deposit in (wall of) artery ;</p> <p>2 blocks, artery / restricts, blood flow ;</p> <p>3 restricts, oxygen / nutrient, supply ;</p> <p>4 blood clotting occurs ;</p>	[1] [max 2]	<p>R cardiac A phonetic spellings</p> <p><i>ignore incorrect name for MP1–4</i></p> <p>A atheroma / plaque A cholesterol / LDL / fatty acids A arteriosclerosis / described</p> <p>A 'narrows' artery</p> <p>R if 'to body' ignore high blood pressure</p>
	(d)	<p>heart not pumping blood / keeps blood circulating ;</p> <p>blood is oxygenated ;</p> <p>carbon dioxide is removed from blood ;</p>	[max 2]	<p>A blood not pumped to the lungs</p> <p>A exchange of oxygen and carbon dioxide for two marks</p> <p>ignore 'to keep patient alive' / 'supply heart with blood'</p>
	(e)	<p>1 ref. to (cardiac) muscle ;</p> <p>2 ref. to myogenic / heart has own pacemaker ;</p> <p>3 <u>septum</u> (divides heart into two) ;</p> <p>4 two (separate) ventricles / AW ;</p> <p>5 ventricle(s), contract / pump ;</p> <p>6 increase blood pressure ;</p> <p>7 right <u>ventricle</u> has thin(er) wall / left <u>ventricle</u> has thick(er) wall ;</p> <p>8 so low(er) pressure / higher pressure ; (in context)</p> <p>9 to lungs / to rest of body ; (in context)</p>	[max 4]	<p>R 'push'</p> <p>A bigger , R tougher A muscle</p> <p>A 'to whole body' for LV if blood to lungs described</p>
			[Total: 15]	