



# Transport in Animals

## Mark Scheme 3

<b>Level</b>	IGCSE
<b>Subject</b>	Biology
<b>Exam Board</b>	CIE
<b>Topic</b>	Transport in Animals
<b>Paper Type</b>	(Extended) Theory Paper
<b>Booklet</b>	Mark Scheme 3

**Time Allowed:** 59 minutes

**Score:** /49

**Percentage:** /100

1 (a)	glucose – R ; oxygen – Q ; urea – 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]	
<b>[Total: 16]</b>			
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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	<b>Accept</b> 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 ; <b>R</b> toxin unqualified	max 5	

2	(e)	<p><i>phagocytes to max 3</i></p> <p>1 ingest / engulf , bacteria / pathogens / viruses ; <b>R</b> '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</i> specificity / lymphocytes respond to particular pathogen <i>or</i> antigen ;</p> <p>7 effect of antibodies described;</p> <p>8 AVP ;</p>	<p>max 4</p>	<p>AVP for either cell type, could be additional point about antibodies</p>
[Total: 18]				

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