Excretion

Mark Scheme 1

Level	IGCSE(9-1)
Subject	Biology
Exam Board	Edexcel IGCSE
Module	Double Award (Paper 1B)
Topic	Structure and Functions in Living Organisms
Sub-Topic	Excretion
Booklet	Mark Scheme 1

Time Allowed: **76 minutes**

Score: **/63**

Percentage: **/100**

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	10%

Question number	Answer	Notes	Marks
1 (a)	constipation; lack of water / lots of water absorbed/ drink less water; lack of fibre / less vegetables / eq;		1
(b)	diarrhoea; less water absorbed; food poisoning / infection / eq;		1
(c)	peristalsis; contraction; muscles; pushed / squeezed / waves / eq;		3
(d) (i)	rectum;		1
(ii)	anus;		1
(e)	faeces versus named excretory product; undigested food versus metabolic waste product; anus versus kidney/lung/skin; not in cells versus in cells;	excretion is removal of faeces from the anus = 0	3
		Total	10

Question number	Answer	Notes	Marks
2 (a)	water / H_2O; mineral(s) / ion(s) / salt(s) / named mineral/ion/salt;	ignore sugar / alcohol / hormones	2
(b) (i)	high conc. to low conc. / eq;		1
(ii)	(partially permeable) membrane / small molecules / eq; water;		1
(iii)	high conc. to low conc. / conc. gradient; partially permeable (membrane/tubing) / eq; diffusion;		2
(iv)	same conc. in fluid and blood / normal blood conc. in fluid / correct glucose conc. in fluid / eq; if high in blood moves out of blood/into fluid; if low in blood moves into blood/out of fluid;		2
(v)	ultrafiltration; small molecules or named small molecule out of blood / large molecules or protein stay in blood / pressure / Bowman's capsule / glomerulus / eq; (selective) reabsorption; glucose / ions / amino acids / water; active transport; glucose / energy / low to high conc. / eq;	mark in pairs – only allow marks from two named processes	4

Question number	Answer		Marks
2 (c) (i)	renal vein and renal artery; ureter;		2
(ii)	nearer to bladder / closer to where waste goes / eq; easier access / closer to surface / eq; ref. to length of tubes/blood vessels /eq;		2
		Total	16

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>3 (a)</td><td><table><tr><th>Event</th><th>Letter</th></tr><tr><td>ultrafiltration</td><td>A;</td></tr><tr><td>glucose reabsorption</td><td>B;</td></tr></table></td><td></td><td>2</td></tr>
<tr><td>(b)</td><td>1. (diuretic) enters blood / travels in blood;

2. pituitary / hypothalamus;

3. less ADH;

4. collecting duct;

5. less permeable;

6. less water (re)absorbed / less water into blood;</td><td>ignore references to urine</td><td>Max 5</td></tr>
</table>

Question number	Answer	Notes	Marks
4 (a)	C;	Ignore ureter	1
(b))	1. (protein molecules are) large / too big / eq;	Accept converse linked to small molecules	2
	2. leave glomerulus / leave capillaries / enter Bowman's / enter renal capsule / eq;	Ignore if into glomerulus	
(ii)	1. <u>reabsorbed</u> / (absorbed) back into blood;	Ignore other named parts of nephron	2 max
	2. <u>proximal</u> / <u>first</u> (convoluted) tubule / eq;		
	3. active transport / active uptake / against concentration gradient / eq;		
(iii)	1. urea;		2
	2. minerals / ions / salts / named mineral ion / hormones / vitamins;		
(c)	1. no insulin / not enough insulin;		max 2
	2. high blood glucose levels;		
	3. cannot reabsorb (all) glucose;		

(d)	1. (more) ADH; 2. increased permeability; 3. collecting duct; 4. (re)absorption of water;		3 max

Total 12 marks

Question number	Answer	Notes	Marks
5 (a)	vessel entering is wider / eq; (increased) pressure; ultrafiltration;	ignore thicker ignore references to capillary structure	2
(b)	capillary / capillaries;		1
(c) (i)	active transport / active uptake; low to high concentration / against conc. gradient / eq; energy / ATP;	reject if in list	2
(ii)	respiration; energy / ATP; osmotic effect;		Max 2
		Total	7

Question number	Answer	Marks
6 (a) (i)	A: palisade (cell) / mesophyll / vacuole; R spongy B: guard cell;	2
(ii)	reduce water loss/transpiration/evaporation; prevent entry of microorganisms; Ignore waterproof	1
(iii)	carbon dioxide + water; glucose + oxygen; allow correct chemical formula	2
(iv)	diffusion / diffuses; stomata / pores / holes; concentration gradient / eq;	2
(b)	reduce water loss; less light; less photosynthesis; conserve energy / eq;	Max 2
(c)	named organ and substance: lungs + carbon dioxide / water kidney + urea / urine / water / salts / eq skin + sweat / water / salts / urea / eq liver + bile;;	2

Total 11 Marks