

# Mark Scheme (Results)

## January 2009

GCE

GCE O level Human Biology  
7042/01

Question Number	Answer	Mark
1(a)	1 mark for each correct answer. <ul style="list-style-type: none"><li>• retina;</li><li>• ciliary body;</li><li>• tympanum;</li><li>• cochlea;</li><li>• optic nerve;</li><li>• ossicles;</li><li>• semi-circular canals;</li><li>• iris;</li></ul>	(8)

Question Number	Answer	Mark
1(b)	1 mark for correct answer. 1 mark each <ul style="list-style-type: none"><li>• stereoscopic vision/ combines images/ 3D;</li><li>• (brain needs information from two eyes) to judge distances;</li><li>• and speed;</li></ul>	(3)

(Total 11 marks)

Question Number	Answer	Mark
2(a)	1 mark for correct answer. <ul style="list-style-type: none"> <li>• photosynthesis;</li> <li>• sunlight / sun / light;</li> <li>• chlorophyll;</li> <li>• surface area / surface / area/eq;</li> <li>• carbon dioxide;</li> <li>• water;</li> <li>• glucose / sugar / carbohydrate;</li> <li>• starch/eq;</li> </ul>	(8)

Question Number	Answer	Mark
2(b)	1 mark for each correct answer from any of the following - maximum 2 marks. <ul style="list-style-type: none"> <li>• carbon dioxide diffuses into leaf;</li> <li>• short distance if thin;</li> <li>• more efficient diffusion / diffusion only efficient/ easier diffusion over short distances;</li> <li>• more/easy efficient light penetration;</li> </ul>	(2)

(Total 10 marks)

Question Number	Answer	Mark
3 (a)	1 mark for each correct answer.  <ul style="list-style-type: none"> <li>• A = ovary;</li> <li>• B = fallopian tube/oviduct;</li> <li>• C = uterus;</li> <li>• D = cervix;</li> </ul>	(4)

Question Number	Answer	Mark
3 (b)	1 mark for each correct answer.  <ul style="list-style-type: none"> <li>• E;</li> <li>• A;</li> <li>• B;</li> <li>• C;</li> </ul>	(4)

Question Number	Answer	Mark
3 (c) (i)	1 mark for each correct answer.  <ul style="list-style-type: none"> <li>• large number of sperms increases chances;</li> <li>• not all/ small percentage of sperm reach point of fertilisation;</li> </ul>	(2)
3 (c) (ii)	Any two pairs, 2 marks each  <ul style="list-style-type: none"> <li>• sperm has tail;</li> <li>• for swimming;</li> <li>• ovum larger / has more cytoplasm;</li> <li>• food store;</li> <li>• sperm has an acrosome;</li> <li>• enzyme to penetrate ovum;</li> <li>• mitochondria;</li> <li>• energy for swimming;</li> </ul>	(4)

(Total 14 Marks)

Question Number	Answer	Mark
4(a)	Any two, 1 mark each <ul style="list-style-type: none"> <li>• wider blood vessels/capillaries/ vasodilation / more blood in capillaries;</li> <li>• hair flatter/ erector muscle relax;</li> <li>• increased sweat/ sweat production;</li> </ul>	(2)

Question Number	Answer	Mark
4(b)	1 mark for each correct answer from any of the following - maximum 3 marks. <ul style="list-style-type: none"> <li>• prevents entry of bacteria / microorganisms / pathogens;</li> <li>• protects against UV light;</li> <li>• prevents loss of water / dehydration;</li> <li>• waterproof / prevents entry of water/chemicals;</li> <li>• reference to temperature control;</li> <li>• protection from rain/ damage by nerve endings;</li> </ul>	(3)

Question Number	Answer	Mark
4(c)	1 mark for correct answer <ul style="list-style-type: none"> <li>• enzymes / respiration affected / constant metabolism;</li> </ul>	(1)

(Total 6 Marks)

Question Number	Answer	Mark
5(a)(i)	1 mark for correct answer. <ul style="list-style-type: none"> <li>ribs/ rib cage;</li> </ul>	(1)
5(a)(ii)	1 mark for each correct answer from any of the following - maximum 2 marks. <ul style="list-style-type: none"> <li>muscle attachment (linked to breathing);</li> <li>protect lungs or heart (from physical damage);</li> <li>red blood cell formation;</li> </ul>	(2)

Question Number	Answer	Mark
5(b)(i)	1 mark for correct answer. <ul style="list-style-type: none"> <li>line to shoulder / hip;</li> </ul>	(1)
5(b)(ii)	1 mark for correct answer. <ul style="list-style-type: none"> <li>line to knee / elbow;</li> </ul>	(1)
5(b)(iii)	1 mark for each correct answer. <ul style="list-style-type: none"> <li>greater movement allowed/ movement in 3 planes/ 360°;</li> <li>couldn't rotate arms / walk properly/ movement in one plane;</li> </ul>	(2)

Question Number	Answer	Mark
5(c)	1 mark for each correct answer. <ul style="list-style-type: none"> <li>attach bone to muscle;</li> <li>transmit pull of muscle;</li> </ul>	(2)

Question Number	Answer	Mark
5(d)	1 mark for each correct answer from any of the following - maximum 2 marks. <ul style="list-style-type: none"> <li>biceps contracts/ shortens/ acts as flexor;</li> <li>elbow acts as a hinge / pivot / eq;</li> <li>attached to radius / lifts radius/ pulls radius;</li> </ul>	(2)

(Total 11 Marks)

Question Number	Answer	Mark
6(a)(i)	1 mark for correct answer.  <ul style="list-style-type: none"> <li>• A;</li> <li>• C;</li> <li>• B;</li> </ul>	(3)
6(a)(ii)	1 mark for each correct answer from any of the following - maximum 3 marks  <ul style="list-style-type: none"> <li>• valves in veins;</li> <li>• direction of blood flow;</li> <li>• speed of flow;</li> <li>• pressure of blood;</li> <li>• deeper arteries;</li> <li>• pulsatile flow in arteries;</li> <li>• type of blood qualified;</li> </ul>	(3)

Question Number	Answer	Mark
6(b)(i)	1 mark for correct answer.  <ul style="list-style-type: none"> <li>• capillary;</li> </ul>	(1)
6(b)(ii)	1 mark for each correct answer from any of the following - maximum 2 marks.  <ul style="list-style-type: none"> <li>• diagram roughly circular with one ring inside;</li> <li>• large lumen;</li> <li>• thin/single cell wall;</li> </ul>	(2)

Question Number	Answer	Mark
6(c)(i)	1 mark for correct answer.  <ul style="list-style-type: none"> <li>• right ventricle;</li> </ul>	(1)
6(c)(ii)	1 mark for correct answer.  <ul style="list-style-type: none"> <li>• pulmonary vein;</li> </ul>	(1)

(Total 11 Marks)

Question Number	Answer	Mark
7(a)	1 mark for each correct answer from any of the following - maximum 2 marks. <ul style="list-style-type: none"> <li>maintain constant / within narrow limits/ steady;</li> <li>internal environment/ in the body;</li> <li>despite external changes / internal changes;</li> </ul>	(2)

Question Number	Answer	Mark
7(b)(i)	1 mark for each correct answer. <ul style="list-style-type: none"> <li>A = insulin;</li> <li>B = glucagon / adrenaline; (spelling of glucagon must be correct)</li> </ul>	(2)
7(b)(ii)	1 mark for correct answer. <ul style="list-style-type: none"> <li>secreted into / carried by blood/ from endocrine gland;</li> </ul>	(1)

Question Number	Answer	Mark
7(c)	1 mark for each correct answer. <ul style="list-style-type: none"> <li>meal eaten / digested;</li> <li>glucose absorbed;</li> </ul>	(2)

Question Number	Answer	Mark
7(d)(i)	1 mark for correct answer. <ul style="list-style-type: none"> <li>glycogen; (spelling must be correct)</li> </ul>	(1)
7(d)(ii)	1 mark for each correct answer. <ul style="list-style-type: none"> <li>liver;</li> <li>muscle;</li> </ul>	(2)

Question Number	Answer	Mark
7(e)	1 mark for correct answer. <ul style="list-style-type: none"> <li>respiration; (not breathing)</li> </ul>	(1)



Question Number	Answer	Mark
7(f)	1 mark for correct answer. <ul style="list-style-type: none"> <li>• conversion of (stored) glycogen / X (into glucose);</li> </ul>	(1)

Question Number	Answer	Mark
7(g)	1 mark for each correct answer from any of the following - maximum 3 marks. <ul style="list-style-type: none"> <li>• water removed;</li> <li>• by osmosis;</li> <li>• because of high(er) water potential in red blood cell/ lower in plasma;</li> <li>• red blood cells shrink;</li> </ul>	(3)

(Total15 Marks)

Question Number	Answer	Mark
8(a)	1 mark for each of set of three bars correctly plotted;;	(2)

Question Number	Answer	Mark
8(b)(i)	1 mark for correct answer. <ul style="list-style-type: none"> <li>coalminer;</li> </ul>	(1)
8(b)(ii)	1 mark for correct answer. <ul style="list-style-type: none"> <li>female baby;</li> </ul>	(1)
8(b)(iii)	1 mark for each correct answer from any of the following - maximum 3 marks. <ul style="list-style-type: none"> <li>coal miner more / very active / baby less / not active/ more work;</li> <li>coal miner uses muscles / lot of muscular activity;</li> <li>more energy required;</li> <li>ref. differences in body size;</li> </ul>	(3)

Question Number	Answer	Mark
8(c)	1 mark for each correct answer. <ul style="list-style-type: none"> <li>males require more energy; (general point)</li> <li>any relevant comparison from table; (quoting figures)</li> </ul>	(2)

Question Number	Answer	Mark
8(d)(i)	1 mark for each correct answer from any of the following - maximum 2 marks. <ul style="list-style-type: none"> <li>pregnant woman only requires 10 300kJ;</li> <li>little more than other females/ less than female teenager;</li> <li>put on excess weight if eat twice as much;</li> </ul>	(2)
8(d)(ii)	1 mark for correct answer. <ul style="list-style-type: none"> <li>enrich diet with vitamins / minerals / folic acid/iron / protein;</li> </ul>	(1)

(Total 12 Marks)

• Question • Number	• Answer	• Mark
• 9(a)(i) • • • • • • • •	• 1 mark for correct answer in table or calculation. • • 0.15g; • with correct working - $0.75 \div 5$ ; • •	• (2) • • • • • • •
• 9(a)(ii) • • • • • • • •	• 1 mark for each correct answer from any of the following - maximum 2 marks. • • sweat; • absorbed by paper; • •	• (2) • • • • • • •
• 9(a)(iii) • • • • •	• 1 mark for each correct answer from any of the following - maximum 4 marks. • • a lot of sweat/ more sweating; • to cool body; • <u>more</u> absorbed by paper; • <u>greater</u> increase in mass; • quote relevant figures;	• (4) • • • • • • •

Question Number	Answer	Mark
9(b)	1 mark for each correct answer from any of the following - maximum 2 marks.  <ul style="list-style-type: none"> <li>• more reliable results; (not accurate)</li> <li>• enables average/ mean to be calculated;</li> <li>• ref variation between students;</li> </ul>	(2)

(Total 10 Marks)