



**GCSE Human Physiology and Health**

**Foundation Tier**

**3417/F**

**MARK SCHEME**

**June 2008**

**Question 1**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)(i)	syringe		1
(ii)	water bottle		1
(b)	water bottle carries bacteria can be passed to other person / owtte develops <u>food</u> poisoning / named example		1 1 1
(c)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• skin</li> <li>• mucus</li> <li>• ciliated cells</li> <li>• acid in stomach/vagina/urethra</li> <li>• scabs/blood clotting</li> <li>• tears</li> </ul>	ignore antibodies / white blood cells  ignore hairs	2
(d)(i)	fungi		1
(ii)	protocistans		1
(iii)	viruses		1
total			10

**Question 2**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)(i)	to make / for growth of / harden / strengthen bones / teeth	do <b>not</b> allow just healthy bones / teeth	1
(ii)	to form haemoglobin / red blood cells	allow prevents anemia	1
(iii)	for growth / formation / repair of (new) tissues / cells owtte	allow kwashiorkor  accept named group of proteins e.g. enzymes / antibodies  ignore reference to energy	1
(b)(i)	apple		1
(ii)	guava		1
(c)(i)	4 correct plots	subtract <b>1</b> mark for each incorrect plot	3
(ii)	papaya <b>and</b> pineapple	<b>both</b> needed in either order	1
(d)(i)	20 (milligrams)		1
(ii)	780 (milligrams)	allow ecf from (i)	1
(iii)	cheese		1
total			12

**Question 3**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)	A – enamel		1
	B – pulp (cavity)		1
	C – dentine		1
(b)	blood vessels / capillaries	ignore arteries / veins	1
	nerve (endings)	allow heat / pain receptors	1
(c)	premolar/molar		1
	top surface is broad / ridged / wide	allow double root	1
		allow designed for chewing / grinding	
(d)	no nerves in A or C <b>or</b> decay has not yet reached nerves		1
total			8

**Question 4**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• carbon dioxide</li> <li>• carbon monoxide</li> <li>• sulphur dioxide</li> <li>• nitrogen oxides/named</li> </ul>		2
(b)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• (gas) <u>dissolves</u> in water</li> <li>• becomes acidic/acid rain</li> <li>• (acid water) kills (aquatic) organisms <b>or</b> is poisonous / toxic to (aquatic) organisms</li> </ul>		2
(c) (i)	carbon dioxide methane	do <b>not</b> allow CFCs	1 1
(ii)	any <b>one</b> from: <ul style="list-style-type: none"> <li>• melting of ice caps</li> <li>• rise in sea levels / islands underwater / flooding</li> <li>• extremes of weather / very high temperatures (long term)</li> <li>• desertification</li> </ul>	do <b>not</b> allow references to ozone layer  accept other valid effects eg destruction of rainforests	1
total			7

**Question 5**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)(i)	P		1
(ii)	R		1
(b)(i)	plasma		1
(ii)	urea / carbon dioxide		1
(c)	enzymes		1
	fibrin		1
	red blood cells		1
(d)	bacterium <u>completely</u> surrounded		1
	bacterium inside cell membrane		1
total			9

**Question 6**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)	Q – testis		1
	R – uterus / womb		1
	S – oviduct/fallopian tube		1
(b)	<b>Q and T</b>	<b>both</b> required in either order	1
(c)	any <b>three</b> from: <ul style="list-style-type: none"><li>• vagina</li><li>• cervix</li><li>• uterus</li><li>• oviduct / fallopian tube</li></ul>		3
(d)(i)	fertilised (egg) cell		1
(ii)	fusion / combine / join	do <b>not</b> allow meet	1
	of egg and sperm/male and female gametes		1

**Question 6 continued on next page...**

**Question 6 continued...**

(e)	<p>The answer to this question requires ideas in good English in a sensible order with correct use of scientific terms. Quality of written communication should be considered in crediting points in the mark scheme. Any <b>2</b> points in correct sequence.</p> <p>any <b>three</b> from:</p> <ul style="list-style-type: none"> <li>• contractions of <u>uterus</u> (wall)</li> <li>• muscles in correct context</li> <li>• cervix widens / dilate</li> <li>• (further contractions) push out baby</li> <li>• (further contractions) force out placenta/afterbirth</li> </ul>	<p>1</p> <p>3</p> <p>do <b>not</b> allow contraction of cervix</p>
total		14



**Question 7**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)(i)	<b>X</b> – triceps	allow extensor and flexor for <b>1</b> mark	1
	<b>Y</b> – biceps		1
(ii)	<b>X</b> / extensor / triceps relaxes		1
	<b>Y</b> / flexor / biceps contracts		1
(iii)	<b>A</b> – ligament		1
	holds bones together	allow prevents dislocation	1
	<b>B</b> – synovial fluid		1
	helps smooth movement / lubricant / ‘shock absorber’ / cushions bones / reduces friction / owtte	ignore easier to move	1
	<b>C</b> – cartilage		1
	prevents bones rubbing / reduces friction / ‘shock absorber’ / cushions bones / owtte		1
total			10

**Question 8**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• temperature</li> <li>• amount / volume of starch</li> <li>• amount / volume of amylase</li> <li>• amount / volume of iodine</li> </ul>		2
(b)	6 correct plots  correct dot to dot <b>or</b> smooth curve	subtract <b>1</b> mark for each incorrect plot  tolerance $\pm$ half a small square  allow acceptable line of best fit that starts at first point and finishes at sixth point	3  1
(c)	starch and iodine solution is blue  amylase breaks down/digests starch  sugar / maltose produced  sugar and iodine solution is colourless; no starch (to form blue colour)	allow glucose  allow no reaction between sugar and iodine	1 1 1 1
(d)	time decreases then increases  correct reference to figures from graph  optimum / works quickest at pH 7  correct reference to denaturing of enzyme	do <b>not</b> allow descriptions of what is happening on each side alone     max <b>2</b> for description	1 1 1 1
total			14

**Question 9**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)(i)	any <b>two</b> from: <ul style="list-style-type: none"> <li>• (dissolved) in rainwater</li> <li>• washed out of soil / run off / leaching</li> <li>• drift into river from crop spraying</li> </ul>	ignore references to insects allow any other sensible explanation	2
(ii)	5000		1
(iii)	any <b>three</b> from: <ul style="list-style-type: none"> <li>• low concentrations are not harmful (to plants) <b>or</b> insecticide not designed to kill plants</li> <li>• <u>builds up</u> along the food chain</li> <li>• is not excreted / stays in body</li> <li>• high concentration / <u>level</u> of DDT <u>toxic</u> / <u>poisonous</u> to birds</li> </ul>	allow cannot enter plant cells allow reference to figures	3
(b)(i)	27-29 (%)		1
(ii)	60 (%)		1
(iii)	P falls (below 80%) most quickly / quicker	comparison needed	1 1
total			10

**Question 10**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)	child(hood)	allow infancy	1
	adult(hood)		1
(b)(i)	84-86 (cm)		1
(ii)	0 to 2		1
(iii)	8 to 12 <b>or</b> 16 to 20		1
(iv)	males – 14 – 16	allow any two year period between 12 and 16	1
	females – 10 – 12		1
total			7

**Question 11**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)(i)	A – iris		1
	C – lens		1
	D – <u>suspensory</u> ligaments		1
(ii)	Cornea / <b>B</b>	either order	1
	Lens / <b>C</b>		1
(iii)	ciliary muscles contract		1
	suspensory ligaments become slack / loose / less tension		1
	lens becomes thicker / fatter / bulges / rounder	allow wider	1
(b)	any <b>three</b> from: <ul style="list-style-type: none"> <li>• correct reference to iris</li> <li>• circular muscles contract</li> <li>• radial muscles relax</li> <li>• pupil becomes smaller / shrinks <b>or</b> iris becomes wider</li> </ul>		3
total			11

**Question 12**

	<b>answers</b>	<b>extra information</b>	<b>mark</b>
(a)	<p>any <b>three</b> from:</p> <ul style="list-style-type: none"> <li>• chemical substance</li> <li>• changes / alters (chemical processes in) the body</li> <li>• taken in owtte</li> <li>• valid effect of a drug : addictive / depressant / medicine / named drug</li> </ul>	<p>not just illegal / legal</p> <p>do <b>not</b> allow affects the brain unqualified</p>	3
(b)	<p>any <b>four</b> from:</p> <ul style="list-style-type: none"> <li>• depressant</li> <li>• slows reactions / reflexes</li> <li>• impaired judgement / memory / overconfident / lack of self control / reduces inhibitions</li> <li>• affects balance / vision / speech <b>or</b> reduces coordination / falling over</li> <li>• may harm the unborn fetus</li> <li>• unconsciousness / coma / death / brain damage</li> <li>• liver damage / failure</li> </ul>	<p>The answer to this question requires ideas in good English in a sensible order with correct use of scientific terms. Quality of written communication should be considered in crediting points in the mark scheme. Use of at least <b>2</b> technical terms in the correct context eg – coordination, reaction, depressant, brain, nervous system, liver, fetus, cirrhosis</p> <p>ignore reference to cancer</p> <p>allow cirrhosis</p>	<p>1</p> <p>4</p>
total			8