

## **Mark Scheme**

Q1.

Question number	Answer	Notes	Marks
(a) (i)	1 = humerus; 2 = radius; 3 = ulna; 4 = fingers/phalanges;		4
(ii)	circle at the elbow to include all three bones;	accept a circle around relevant bones in the fingers	1
(iii)	<ul><li>ball and socket;</li><li>gliding/sliding;</li></ul>	reject named examples	2
(b)	<ul> <li>assists/allows uptake of calcium (salts from gut);</li> <li>(calcium) needed for bone growth;</li> <li>hard bone/compact bone;</li> </ul>		3
	With the second	Tota	al 10 marks



## Q2.

Quest numb		Answer	Notes	Marks
(a)	(i)	aerobic respiration (1)		1
	(ii)	<ul><li>shorter (1)</li><li>fatter/wider/thicker (1)</li></ul>		2
	(iii)	<ul> <li>shortening causes tension/pull (1)</li> <li>tendon inelastic (1)</li> <li>pulls on radius/bone (1)</li> </ul>		3
(b)		<ul> <li>ball and socket indicated labelled bone (1)</li> <li>capsule/ligament labelled (1)</li> <li>cartilage labelled (1)</li> <li>synovial fluid labelled (1)</li> <li>synovial membrane labelled (1)</li> <li>overall appearance of diagram (1)</li> </ul>		6

## Q3.

Question number	Answer	Additional guidance	Mark
(a)(i)	Process: (30 ÷ 100) × 1.7 million (1) = 510 000 (1)	allow 2 marks for correct final answer	
			2

Question number	Answer	Mark
(a)(ii)	Any two possible suggestions from the following:	1
	<ul> <li>different causes/named example/not all because of osteoporosis (1)</li> <li>different diet in UK (1)</li> <li>effective preventative measures in UK (1)</li> </ul>	
		2

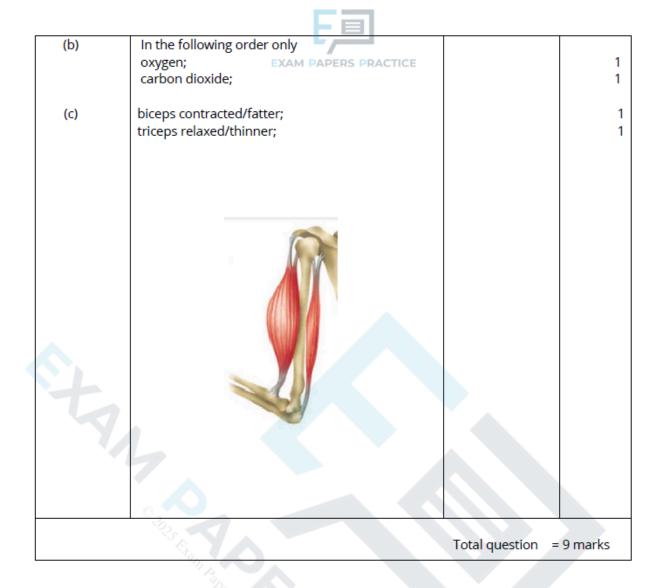
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Question	Answer	Mark
number	EXAM PAPERS PRACTICE	
(b)	<ul> <li>Any two linked explanations from the following:</li> <li>increase intake of calcium/phosphate (1) as this forms part of compact bone (1)</li> <li>vitamin D supplement (1) helps uptake of calcium salts (1)</li> <li>increase exercise (1) prevents bones becoming weaker (1)</li> </ul>	
		4

Question number	Answer	Mark
(c)(i)	A description that makes reference to the following two points:     bone structure/mass becomes less (1)     bone strength reduced (1)	
		2

Question number	Answer	Mark
(c)(ii)	A suggestion that makes reference to any two of the following points:  • bones internal/cannot be seen (1)  • therefore only become aware when bone breaks (1)  • unlikely to be noticed/diagnosed until a fracture occurs (1)	2

Q4.

Question number		Answer	A	Marks
(a)	(i)	X cartilage; Y femur; Z knee cap;		1 1 1
	(ii)	B ligaments hold the leg bones together  A is incorrect as ligaments do not attach muscles to bones C is incorrect as ligaments do not move leg bones D is incorrect as ligaments do not stop the leg bones rubbing together		1
	(iii)	hinge/synovial (joint)		1



Q5.

Questi		Answer	7	Notes	Marks
(a)	(i)	line labelled X to mouth;			1mark
,	(ii)	line labelled Y to stomach;			1mark
	`	•			
(	(iii)	line labelled Z to pancreas;			1mark
(b)		any 4 of			
		<ul><li>reduced surface area;</li><li>so unable to absorb calcium;</li></ul>			4marks
		<ul><li>required for bones/compact bone;</li><li>calcium passes from bone;</li></ul>			
		<ul> <li>causes them to weaken/soften/lose density;</li> </ul>			
(c)		large intestine absorbs water;			2marks
		<ul> <li>not enough absorbed;</li> </ul>			
				To	otal 9 marks



## Q6.

Question number	Answer	Notes	Marks
(a)	<ul><li>where two bones;</li><li>come together/meet;</li></ul>		2
(b) (i)	<ul><li>humerus;</li><li>ulna;</li></ul>		2
(ii)	<ul> <li>covers end (of ball) of humerus/L;</li> <li>covers depression in ulna/M;</li> </ul>		2
(c)	<ul> <li>movement not smooth/bones grind/rub together/less shock absorption/increased friction;</li> <li>painful;</li> </ul>		2
(d)	any four from  • attached to end of muscle/attach muscle to bone; • inelastic/do not stretch; • muscle contracts; • pulls tendon; • causing M/ulna/bone to move;		
		7	4
			Total 12