UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

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for the guidance of teachers

0648 FOOD AND NUTRITION

0648/01

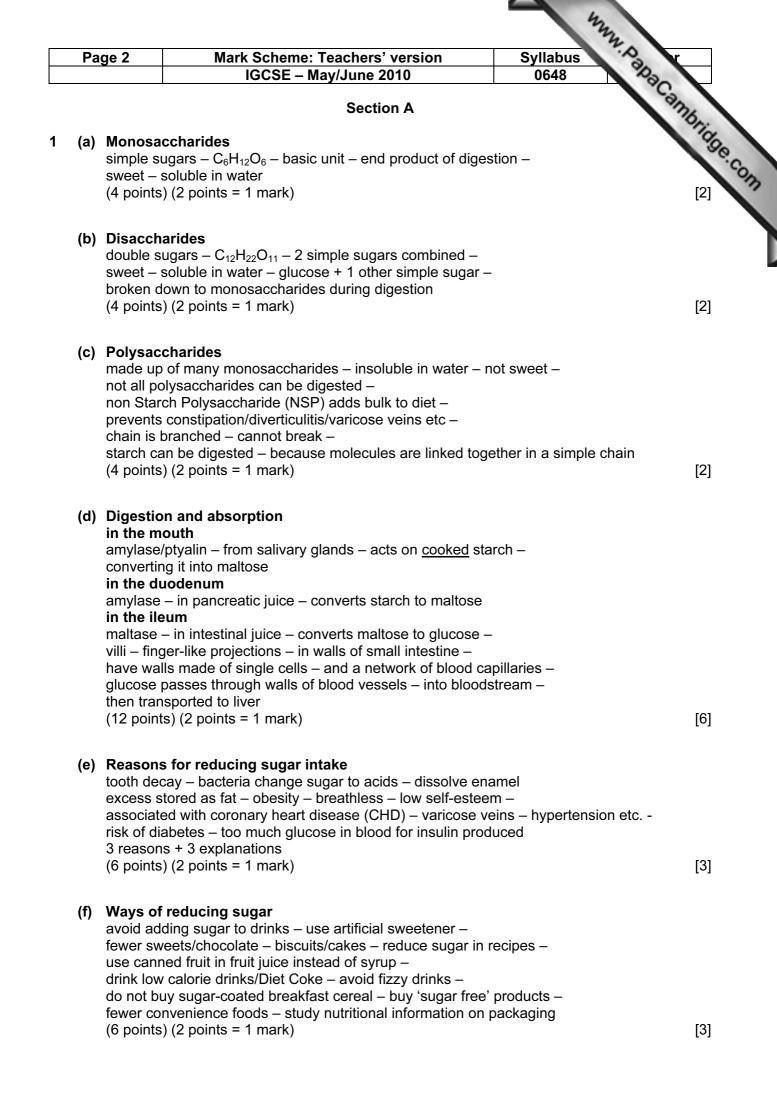
Paper 1 (Theory), maximum raw mark 100

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



Pa	ge 3	Mark Scheme: Teachers' version	Syllabus Syllabus	
		IGCSE – May/June 2010	0648 23	
(a)	formation picks up of transports energy pi CO ₂ atta transports	nce of iron n of haemoglobin – red pigment in blood – oxygen from lungs – oxyhaemoglobin – s oxygen to cells – oxidises glucose – cell respiration roduced – leaving carbon dioxide and water – inches to haemoglobin – carboxyhaemoglobin – ed to lungs – for breathing out/disposal) (2 points = 1 mark)	Syllabus 0648 on –	Bric [2
(b)	chocolate dried fruit green veg	of iron ey – red meat (or one named example e.g. corned e – curry powder – black treacle – t (or named e.g.) – pulses (or named e.g.) – soya b getables (or named e.g.)) (2 points = 1 mark)		[2
(c)	Deficien Anaemia (1 mark)	cy disease		[1
(d)	feel dizzy	ns ed/lethargic/fatigued – weak – headaches – //faint – lacks energy – breathless = 1 mark)		[1]
(a)	clear skin makes co for produ growth – helps to b absorptio	nce of vitamin C n – building/maintenance of linings of digestive syst onnective tissue – to bind cells together – ction of blood – and walls of blood vessels – helps to heal wounds/fractures – immune system build strong teeth and gums – on of iron – antioxidant etc.) (2 points = 1 mark)		[2]
(b)	citrus frui strawberr green veg	of vitamin C it (or named e.g.) – blackcurrants – rose hips – ries – melon – tomatoes – mango – green peppers getables (or named e.g.) – new potatoes etc.) (points = 1 mark)	_	[2
(c)	Deficien Scurvy (1 mark)	cy disease		[1]
(d)	bruises a gums ble as blood	ns blood vessels weaken/break – blood escapes – ppear under the skin – pain in muscles and joints eed – teeth loosen - heart failure – passes through walls of capillaries etc. = 1 mark)	_	[1]

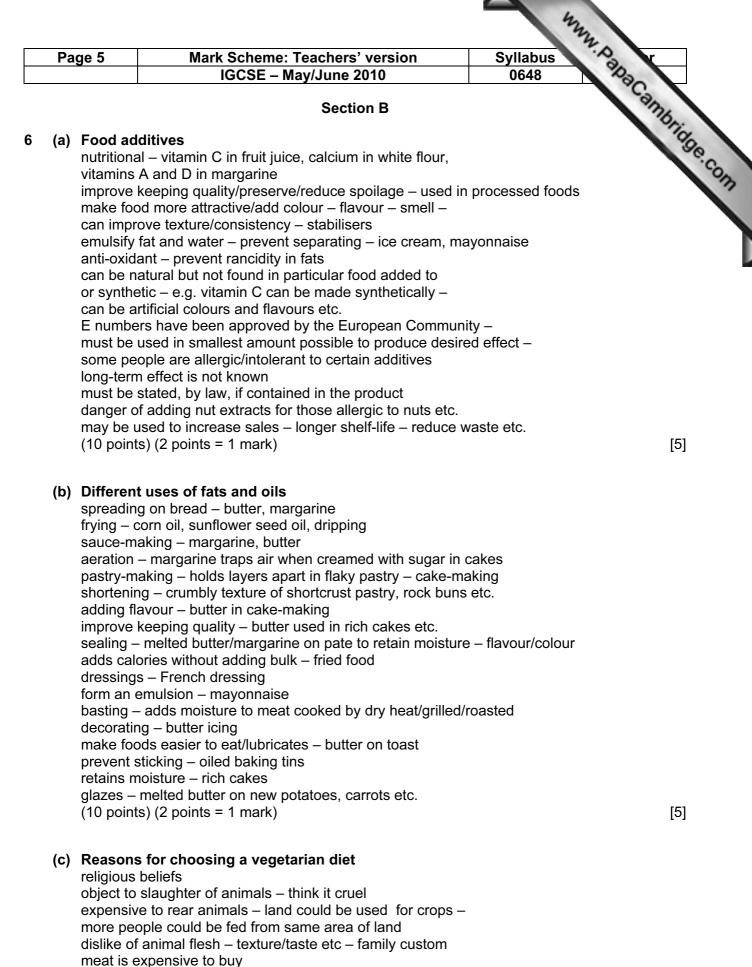
Page 4	Mark Scheme: Teachers' ve	ersion	Syllabus Syllabus	X
	IGCSE – May/June 201	0	Syllabus 0648 dness/Xerophthalmia steomalacia	2
Deficiency d	liseases			an
-	tamin C – in previous questions			
Vitamin A/Re	· · ·	Night bline	dness/Xerophthalmia	
Vitamin D/Ch	olecalciferol	Rickets/os	steomalacia	
Vitamin B1/T	hiamine	Beriberi		
Vitamin B2/R	iboflavin	Dermatitis	s/cataracts	
Vitamin B3/N		Pellagra		
Vitamin B12/			s anaemia	
Folate/folic a	cid		spina bifida	
Calcium			steomalacia/tetany/osteo	porsis
lodine		Goitre		
Protein		Kwashiorl		
Carbohyrate/	•	Marasmus	s (lack of energy foods)	
	diseases x 1 point			
	nutrients x 1 point			
(8 points) (2 j	points = 1 mark)			

[4]

5 Planning meals for the elderly

small portions - appetite reduces with age remove bones/skin etc - eyesight may be poorer - food needs to be easy to eat/chew may need to cut into small pieces/mince - elderly may have few teeth fewer carbohydrate foods - elderly may be less active need protein foods - to repair worn out cells iron – to prevent anaemia vitamin C – to absorb iron – immunity calcium/phosphorus - to maintain bones and teeth - for blood clotting - muscle function vitamin D - to absorb calcium soft foods - easier to eat low in fat - easier to digest - reduces risk of CHD - obesity reduce salt - reduces risk of hypertension/high blood pressure reduce sugar - reduces risk of tooth decay - obesity - higher sugar intake is linked to diabetes fruit and vegetables – NSP – less risk of constipation variety of colour - flavour - texture - to add interest - make appetising reduce spices and strong flavours - these are less easily tolerated snack foods should be nutritious - include milk daily etc. (12 points) (2 points = 1 mark) [6]

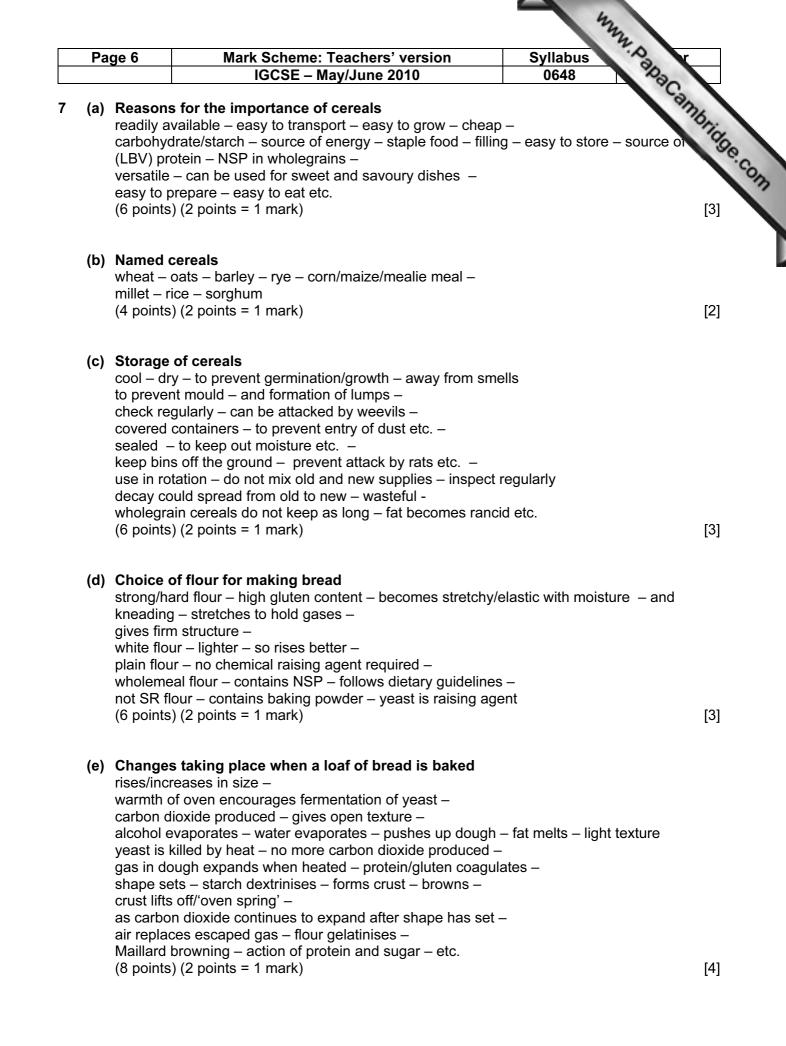
[Section A Total: 40]

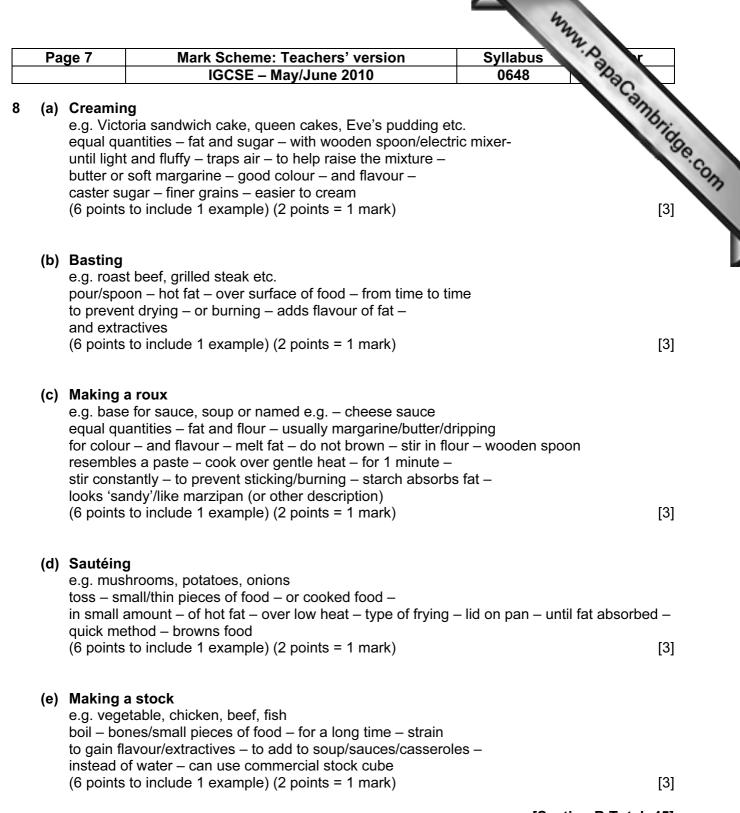


belief that vegetarian diet is more healthy – animal fat has cholesterol – associated with CHD recent health scares – BSE/bird 'flu etc./salmonella

(10 points) (2 points = 1 mark)

[5]





[Section B Total: 45]

Page 8	Mark Scheme: Teachers' version	Syllabus 7 Syllabus	
	IGCSE – May/June 2010	0648	
	Section C	Camb	
• •	s the reasons for preserving food and explain ed methods of preservation.	how food spoilage is preve	ne.co
The ans	wer may include the following knowledge and und	erstanding.	1
_			

Section C

Reasons for preserving

eniov food out of season buy food when plentiful to use when scarce to cope with a glut to prevent waste to give variety – food can be frozen, dried new products made - jam, pickles etc. to enjoy foods produced in other countries to have a store of food useful in emergencies etc. to prevent the growth of yeast - mould - bacteria to prevent loss of water/dehydration of fresh foods

Methods of preserving:

Freezina

water in cells frozen - unavailable for growth of bacteria bacteria cannot grow at low temperatures - dormant e.g. fish, vegetables , meat etc.

Jam-making

high sugar content /60% added sugar water withdrawn from cells - too concentrated for bacteria to thrive sealed in jars - to prevent entry of micro-organisms e.g. plums, strawberries, guava etc.

Pickling

salt to cover food – withdraw water from cells (by osmosis) acid/vinegar to replace water micro-organisms cannot thrive in high acidic conditions e.g. onions, gherkins, cabbage etc.

Pasteuristion heated to 72°C (162°F) – 15 seconds or 63°C (145°F) – 30 minutes cooled rapidly - destroys harmful bacteria e.g. milk, fruit juice etc.

Ultra Heat Treatment (UHT) heated to 132°C – for not more than 1 second – destroys harmful bacteria - prevents souring e.g. milk, cream etc.

Bottling and Canning heat destroys bacteria - sealed to prevent further entry of bacteria e.g. fruit, milk, vegetables, fish etc.

Page 9	Mark Scheme: Teachers' version	Syllabus	2
	IGCSE – May/June 2010	0648	Day
Drying			Papa Cambrida
	noved – bacteria cannot multiply without water		16.
	meat, fish, herbs, spices etc.		19
			0
Salting			
water rei	noved by osmosis – micro-organisms need water to	o thrive	
e.g. fish,	beans etc.		
• • • •			
<u>Smoking</u>			
	oves water – phenols from smoke deposited on foo	d surface	
	rowth of micro-organisms		
e.g. fish,	meat		

water sublimes in vacuum – structure remains same – micro-organisms need water to thrive e.g. coffee, vegetables, strawberries

Vacuum packing

air removed – entry of micro-organisms prevented – no oxygen for bacterial growth e.g. meat, fish, coffee etc.

Irradiation

packages irradiated – no change to appearance of food – cannot detect that process has taken place – micro-organisms destroyed by gamma rays – e.g. spices, strawberries etc.

Artificial additives

sulfur dioxide – nitrates – inhibit growth of micro-organisms e.g. sausages, bacon etc.

age 10	Mark Scheme: Teachers' version	Syllabus Pr
	IGCSE – May/June 2010	0648
<u>Band</u>	<u>Descriptor</u>	Part mark
High	 Can identify many reasons for preserving food Is able to identify and discuss several methods of preservation Gives examples to illustrate points made Understanding of the topic is apparent Information is specific and generally accurate All areas of question addressed Answers are detailed where appropriate Some specific facts included and the topic is address in its widest application 	Syllabus 0648 Part mark 11–15
Middle	 Some reasons for preserving food Is able to identify a few methods of preservation Some discussion or explanations given Gives a few examples to illustrate points made Shows some understanding of the topic Information is basic and generally accurate Some areas of question addressed Gaps in knowledge will be apparent May be a few specific facts Answer will be detailed in parts and superficial in ot Overall lack of detail 	6–10 hers
Low	 May give a few reasons for preserving food Mentions some methods of preservation May give examples to illustrate Answer tends to be a list of statements Not always accurate Information is brief Superficial treatment of topic Answers not specific Little or no detailed information Emphasis on one part of the question Lack of knowledge will be apparent 	0–5

Page 11	Mark Scheme: Teachers' version	Syllabus	2
	IGCSE – May/June 2010	0648	Da
	s the nutritive value of eggs and explain h tion of dishes.	how they can be u	so amprice
	wer may include the following knowledge and under	erstanding.	30
The ans	the may more and the following fallowing go and and		-0

(b) Discuss the nutritive value of eggs and explain how they can be use 9 preparation of dishes.

Nutritive value of eggs

protein (or named e.g. ovalbumin/mucin/vitellin) growth/repair/maintenance/energy/hormones/enzymes etc. fat – saturated – energy/warmth/ absorb vitamins A,D,E and K etc, vitamin A/retinol – prevent night blindness/healthy skin/mucous membranes etc. vitamin D/cholecalciferol - absorption of calcium/bones and teeth etc, vitamin B2/riboflavin (or vitamin B) - release energy from carbohydrates/growth/clear skin iron - haemoglobin/transport oxygen/release energy from glucose/ prevent anaemia etc. phosphorus - works with calcium/formation of bones and teeth/ formation of protoplasm/component of protein

sulfur - formation of protoplasm/component of protein

Uses of eggs

main dish/breakfast/snack –	omelette, scrambled egg, boiled egg etc.
trapping air/making mixtures rise –	Swiss roll, sponge flan etc.
lightening	mousse, meringue, soufflé
thickening	custard, sauces, soup etc.
setting	quiche, rich cakes, baked egg custard etc.
emulsifying	mayonnaise, rich cakes etc.
binding	croquettes, fish cakes, stuffing etc.
coating	Scotch eggs, fish fillets etc.
glazing	pastry, bread etc.
enriching	sauces, milk pudding, soup etc.
garnishing	salad, dressed crab, omelette strips etc.
colour	pastry, cake etc.

egg white can hold 7 × its own volume of air – protein entangles air must be no fat in bowl/no egg yolk etc. - will not whisk protein coagulates/sets/solidifies/hardens when heated forms a seal around foods to be fried - fat cannot penetrate egg white at 60°C – egg yolk at 66°C – egg white thickens - changes from transparent to opaque becomes firm - then rubbery if overcooked volk thickens - becomes powdery when overheated protein denatures when heated - changes cannot be reversed indigestible if overcooked - protein denatures etc.

Page 12	Mark Scheme: Teachers' version IGCSE – May/June 2010	Syllabus 0648
<u>Band</u>	Descriptor	<u>Part mark</u>
High	 Candidate can name more than 4 nutrients and can state functions Can state at least 3 uses of eggs and give examples to illustrate Can give some explanations of methods Comments are precise and are related to specific examples Information given is accurate Knowledge of the topic will be apparent 	
Middle	 Can name at least 3 nutrients in eggs Gives some of the functions Can state no more than 3 uses of eggs Gives some examples to illustrate uses May attempt to give explanations of methods Some gaps in knowledge Terminology not always accurate Information is not always precise Little scientific information Limited knowledge will be apparent 	6–10
Low	 Can name a few of the nutrients in eggs Functions not always known Can give 1 or 2 uses of eggs May not always give examples to illustrate uses Information not always accurate No scientific explanations General information Basic facts Lack of knowledge will be apparent Weak candidates may list ways of cooking eggs 	0–5

with little further information

[Section C Total: 15]