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#### UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

# MARK SCHEME for the November 2004 question paper

#### 0648 FOOD AND NUTRITION

0648/01

Paper 1 (Theory), maximum mark 100

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the Report on the Examination.

• CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2004 question papers for most IGCSE and GCE Advanced Level syllabuses.

**Grade thresholds** taken for Syllabus 0648 (Food and Nutrition) in the November 2004 examination.

	maximum	minimum mark required for grade:				
	mark available	А	С	Е	F	
Component 1	100	75	60	40	30	

The threshold (minimum mark) for B is set halfway between those for Grades A and C. The threshold (minimum mark) for D is set halfway between those for Grades C and E. The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.

Grade A\* does not exist at the level of an individual component.

## November 2004

# INTERNATIONAL GCSE

# MARK SCHEME

**MAXIMUM MARK: 100** 

SYLLABUS/COMPONENT: 0648/01
FOOD AND NUTRITION
(Theory)



Page 1			Mark Scheme		Syllabus	Paper
		INTERNATIO	NAL GCSE – NOVE	MBER 2004	0648	1
			Section	Α		
<b>(a</b> )	grow prod		maintenance tions/hormones/enz any 3 x 1 ma	ymes/antibodies	ene	rgy [
(b)	carb	oon - hydrogen	- oxygen - nitrogen 4 points	2 points = 1 r	nark	[:
(c)	(i)	HBV protein contain all inc	dispensable amino-a 1 well-expla	acids - in adequ ined point - 1 m		[
	<b>(</b> ii)	meat - fish - 6	eggs - milk - cheese 4 points	- soya/TVP 2 points = 1 r	mark	[:
(d)	(i)	LBV protein lacks - at leas	st one - essential an 1 well-expla	nino-acid ined point - 1 m	ark	[
	(ii)	cereals - puls	es - nuts - gelatine 4 points	(max 2 example 2 points = 1 r		[3
(e)	(i)	•	ds - eaten together indispensable amin	o-acid in one - r ined points - 2 r	• •	e other [:
	(ii)	beans on toa	st - lentil soup and l 2 examples			[
(f)	in th co tr in th p in th	e stomach - rel onverts protein ypsinogen to tr e duodenum - eptones/peptid e ileum - ereps	trypsin - from pancr es/polypeptides in - from intestinal j orbed in villi - into b (must be at	es/polypeptides eatic juice - con uice - converts   blood capillaries least 2 points or	<ul> <li>enterokinase</li> <li>verts protein to</li> <li>peptones to an</li> <li>absorption)</li> </ul>	e – converts o mino-acids -
(g)	nitro	<u>mination</u> ogen/ammonia i idneys	12 points removed - in liver - t		as urea/in urin	
(a)	help	or in the body is in excretion orbs water - ma	4 points kes faeces soft - ar	2 points = 1 r nd bulky - easie		[:

8 points 2 points = 1 mark

[4]

encourages peristalsis - gives feeling of fullness - removes toxins - prevents constipation - diverticular disease - cancer of colon - hernia -

haemorrhoids - lowers cholesterol (max 2)

	Page 2		Mark Scheme	Syllabus	Paper
	-		INTERNATIONAL GCSE – NOVEMBER 2004	0648	1
	(b)	gre	ole grain cereals - brown rice - whole-wheat flour - ween vegetables - celery - rhubarb - fruit skins - tomate ts - plums - pulses - bananas (allow fruit and vegetables of 4 examples - 2 marks	o seeds - drie	ed fruit -
3	(a)	for chl	ater balance - replaces salt lost - in sweat/blood etc. to replace water lost body fluids - blood, sweat, tears etc. oride forms part of HC1 - in gastric juice your - in savoury dishes	- 1 mark 1 mark 1 mark	[3]
	(b)	he	t climates - water lost to cool body avy manual work - water lost in perspiration ercise/sports - fever - water lost to cool body	2 x 1 mark	<b>[2]</b>
	(c)	mι	iscle cramps	1 mark	[1]
	(d)	les rep use les fev soa	es bacon, salted fish, cheese, etc salt added to press processed food - convenience foods, stock cubes, place with potassium chloride - similar flavour but note when cooking food or when serving - not both etc. other flavourings - herbs, spices etc. es soya sauce/MSG ever salty snacks - nuts, crisps etc. eak ham before cooking or bring to boil - salt dissolves coose unsalted versions of foods - such as butter etc. 6 well-explained points	dried soup et sodium	C.
			·	TOTAL for Se	
			Section B	TOTAL IOI 30	ection A. 45]
4	(a)	pro	trients in red meat otein - fat - iron - vitamin A - vitamin D - thiamine - rib oalamin (B <sub>12</sub> ) - (or allow vitamin B once) 6 points 2 points = 1 m		inic acid - [3]
	(b)	bea	nderising meat before cooking ating - mincing or cutting into small pieces - hanging ak/marinade - in acid (wine/vinegar/lemon juice) - e of enzymes - papain (papaya) bromalin (pineapple (Do not allow 'use of tenderising powders' or 'me 4 named methods x 1 point	) at tenderiser')	
	(c)	(i)	Moist methods of cooking braising - boiling - stewing - pressure cooking 2 methods - 1 mark		[1]
		(ii)	Changes during cooking insoluble - collagen - changes to gelatine - which fibres fall apart - fat melts - colour changes from r extractives squeezed out - protein coagulates - 8 points 2 points = 1 m	red to brown -	shrinks

Page 3		Mark Scheme	Syllabus	Paper
		INTERNATIONAL GCSE – NOVEMBER 2004	0648	1
(d)	) (i	Reasons to reduce red meat narrows arteries - cholesterol deposited in arter contains saturated fat - high in cholesterol - blo can lead to coronary heart disease - high blood can cause obesity/weight gain - can result in br 6 points 2 points = 1	cks arteries - l pressure - stro eathlessness o	
	(ii	Alternatives to red meat white meat (or named e.g chicken, turkey) - f pulses (or 1 named example) - cereals - nuts - complementation or mixing LBV protein or eatin eggs - milk - cheese 4 points 2 points = 1	mention of prof ng a variety of I	tein
		i pointe 2 pointe i	man	[-1
(a)	rt cr b rc { w	ieve (dry ingredients/flour) - before folding in flub fat into flour - plain cakes, short reaming fat and sugar - Victoria sandwich adding egg into creake making olling and folding - flaky and rough publisking egg whites - meringues, souffle hisking whole eggs and sugar - Swiss roll, sponger	crust pastry, so cake etc. eamed mixture uff pastry es etc.	cones etc.
		5 x 1 mark for method + ex	kample	[5]
(b)	si	cones eve dry ingredients - aerate, mix dry ing b in fat - break into small p dry ingredients	ieces, to mix th	oroughly with
		rir in sugar and other dry ingredients - to mix evenly dd liquid/milk - mix with round-bladed knife - cold - k sticky dough		oft but not
	kı fo p	raw together gently - with fingertips - pressure knoc nead lightly - to avoid developing gluten - gives a to orm into round shape - less waste when cutting roun ress or roll gently - until 1½-2 cm thick	ugh result id shapes	vonoutic
	C	ork on lightly-floured board - to prevent sticking, to a ut into shapes - same size and thickness - for even rush with egg/milk for savoury scones or water and to give a brown, shiny surface/a brown, crispy s	baking sugar for swee	•
	b	ake at 225°C/450°F or gas mark 8 - for 8-10 minutes not much fat so quick cooking needed to preve oven, preheat oven		ase tray, hot
	h	ot over causes carbon dioxide to be produced quick	kly - to raise sc	ones

(c) **Variations** 

cheese - sugar - dried fruit - (or currants, raisins or sultanas) - walnuts glace cherries - herbs (or named example) - potatoes 2 examples (avoid repetition e.g. not 2 dried fruit) 1 mark [1]

2 points = 1 mark

[6]

when well-risen, set and golden brown - remove onto cooling tray 12 points

	Page 4		Mark Scheme	Syllabus	Paper		
			INTERNATIONAL GCSE – NOVEMBER 2004	0648	1		
	(d)	(i) (ii)	Carbon dioxide  (a) produced by the action of moist heat - on ba	aking powder	1 mark	[1]	
			(b) gases expand on heating - pushing up mixture - leaves a colourless and tasteless residue - heat of oven sets risen shape - protein coagulates				
			4 points to cover (i) and (ii) 2 points = 1 m	ark	2 marks	[2]	
6	(a)	(i)	Causes of food spoilage yeasts - moulds - bacteria - enzyme action 4 points 2 points = 1 m	ark		[2]	
		(ii)	Conditions warmth - moisture - food - time - oxygen - correct 4 points 2 points = 1 m	-		[2]	
	(b)	(i)	low temperature -18°C stops growth of bact water unavailable	teria			
			4 points 2 points = 1 m	ark		[2]	
		(ii)	fast freezing -25°C small ice-crystals for do not rupture cell walls contents do not esca 4 points 2 points = 1 m	ape from cells		awed <b>[2]</b>	
	(c)	(i)	4°C (1-7°C) 1 mark			[1]	
		(ii)	<ul> <li>(a) too high - warm enough to allow bacteria to food will not keep for so long</li> <li>(b) too low - water in eggs, green vegetables texture of food will be damaged</li> </ul>				
			2 points = 1 mark			[1]	
		(iii)	use food in rotation - prevents waste wipe milk bottles - to prevent dirt from outside bei keep raw and cooked food separate - prevent cro raw meat at bottom - prevent juices dripping onto temperature must be approx. 4°C - to slow down do not put hot food into refrigerator - increases te throw away old food - could be dangerous to eat cover strongly smelling food - to prevent tainting use clean containers - free from bacteria from oth clean regularly - to ensure free from bacteria keep door closed box for get at bottom cover or wrap food - to prevent drying out	ss-contamina cooked food growth of mid mperature ins other food er food	ation cro-organis	sms	
			do not overcrowd - to allow cold air to circulate et 5 well-explained points	C.		[5]	

[TOTAL for Section B: 45]

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#### 7 (a) Reasons for cooking

to make it safe by destroying bacteria

to make it more attractive by developing colour

to make it more palatable by developing flavour

to tenderise so that it is easier to eat

to make it more digestible by cooking starch etc.

to preserve by destroying micro-organisms and denaturing enzymes

to provide variety in the diet by combining flavours etc.

to provide hot food in cold weather

to combine ingredients to make new dishes etc.

## Saving money when buying food

importance of planning meals - buy correct quantities

make a shopping list - do not buy unnecessary foods

shop around for best value for different foods

use special offers/loss leaders

fresh foods usually cheaper than processed foods

know how to recognise fresh products - meat, fish, fruit, vegetables etc.

buy food in season - cheaper price and best quality

buy local foods - no transport costs included

buy sufficient to preserve when in season - use when expensive

buy in bulk/large pack - if storage is available

do not buy more than can be stored - will deteriorate, may have to throw away

prepare the exact amounts needed - or make use of left-overs

look for reduced goods at end of day/at end of 'sell by' date - if they can be used

do not have a rigid idea of meals for the day - make use of bargains etc.

#### Cooking food

peel fruit and vegetables very thinly

use left-over foods in rechauffe dishes e.g. Shepherd's Pie

use raw fruit and vegetables where appropriate

use all shelves when baking/cooking a meal

cook entire meal in oven or on hob

use fuel-saving equipment - steamer, slow cooker, pressure cooker, microwave oven

cook extra portions to freeze for later

do not overcook foods

flames not too high - not up sides of pan

base of pan to fit hotplate - no heat wasted at base of pan

minimum water when boiling vegetables or in kettle

lid on pan - loss of heat, loss of water by evaporation etc.

30 points to include facts, explanations and examples

At least 4 points from each area - reasons for cooking, buying and cooking food

2 points = 1 mark

[15]

Page 6	Mark Scheme	Syllabus	Paper
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## 7 (b) Information on label

name of food - so correct food is bought product description - may not be obvious from name ingredients list - in descending order of weight - may wish to avoid ingredient additives - by name or number - so those with allergies - or hypertension can avoid cooking instructions - so product can be served at its best storage instructions - to maintain best quality

legal advice - may contain nuts etc.

'sell by' or 'use by' dates - so product is safe to eat weight/number in package - so unit price can be calculated, to buy the amount needed brand name - may want to buy from a well-known range name and address of manufacturer - in case of complaint country of origin - may wish to avoid produce from particular areas picture of product

bar code - pricing, stock control etc.

#### **Nutritional Information**

gives nutritional content per 100g - and per serving

helps to plan balanced diet

may have added vitamin C - calcium

may state daily requirements of particular nutrients

shows what proportion of daily amount is supplied by each serving

states amount of fat - useful for low fat diet

states how much of fat is saturated - for those with CHD or for prevention

quantity of sodium - low salt for those with hypertension

protein from vegetable sources - for vegetarians - if 'V' shown on label

kcal/kJ per 100g or per portion - for those counting calories

weight reducing diet - may wish to reduce intake of fat and sugar

can use kcal. information to calculate daily intake

etc.

vegetarians -will not wish to include animal fat in their diet

will be able to check the type of fat in the product

those on a low cholesterol diet -will wish to check the amount of saturated fat

will wish to control quantity of fat in product etc.

30 points to include facts, explanations and examples

2 points = 1 mark [15]

[TOTAL for Section C: 15]

[Total for Paper: 100]