



Coimisiún na Scrúduithe Stáit
State Examinations Commission

LEAVING CERTIFICATE 2010

MARKING SCHEME

AGRICULTURAL ECONOMICS

HIGHER LEVEL

PART I (120 Marks)

20 QUESTIONS - 15 QUESTIONS TO ANSWER.

ALL QUESTIONS CARRY EQUAL MARKS (8 MARKS)

Outline Marking Scheme

1.	4 m + 2 m + 1 m + 1 m	11.	Expl. 5 m; Example 3 m
2.	8 marks (4 m + 2 m + 2 m)	12.	1 @ 5 marks + 1 @ 3 marks
3.	1 @ 5 marks + 1 @ 3 marks	13.	8 marks (5 m + 3 m)
4.	8 marks (5 m + 3 m)	14.	1 @ 5 marks + 1 @ 3 marks
5.	1 @ 5 marks + 1 @ 3 marks	15.	1 @ 5 marks + 1 @ 3 marks
6.	1 @ 5 marks + 1 @ 3 marks	16.	8 marks (5 m + 3 m)
7.	Reason 5 m; Example 3 m	17.	1 @ 5 marks + 1 @ 3 marks
8.	4 @ 2 marks each	18.	8 marks (5 m + 3 m)
9.	1 @ 5 marks + 1 @ 3 marks	19.	1 @ 5 marks + 1 @ 3 marks
10.	8 marks (4 m + 4 m)	20.	1 @ 5 marks + 1 @ 3 marks

PART II (200 Marks)

4 QUESTIONS TO ANSWER AT 50 MARKS EACH.

1. (a)	Output and production	2 @ 5 marks each (3 + 2)	10
(b)	(i) GAP at market prices	7 marks (3 + 3 + 1)	
	(ii) GAP at factor cost	7 marks (3 + 3 + 1)	
	(iii) NAP at factor cost	4 marks (3 + 1)	
	(iv) FFI of national farm	7 marks (3 + 3 + 1)	25
(c)	Two difficulties:	8 marks (5 m + 3 m) + 7 marks (5 m + 2 m)	15
			[50 marks]

2. Distinguish between each of four pairs:

(Two points of information required in each case, one of which must be the distinguishing one. Extra 2 marks for reference to Agriculture in each case.)

(a)	Whole farm v enterprise cost accs	[6 (3+3) + 5 (3+2) + 2 Marks]	13
(b)	Fixed cost and opportunity cost	[6 (3+3) + 5 (3+2) + 2 Marks]	13
(c)	Term-loan and leasing	[5 (3+2) + 5 (3+2) + 2 Marks]	12
(d)	Partial budget and capital budget.	[5 (3+2) + 5 (3+2) + 2 Marks]	12
			[50 marks]

3. (a)	(i) Total Revenue	6 marks	
		<i>(If incorrect, max 3 m for workings)</i>	
	(ii) Impact of cost increase:		
	Diagram	12 marks (3 items @ 4 m each)	
	Explanation	8 marks (4 m + 2 m + 2 m)	26
(b)	(i) Price ceiling:		
	Diagram	8 marks (2 items @ 4 m each)	
	Explanation	8 marks (4 m + 4 m)	
	(ii) How EU addresses problem	8 marks (5 m + 3 m)	24
			[50 marks]

4. (a) Single Farm Payment (SFP) and Cross Compliance 6 + 6 + 5 marks 17
- (b) REPS 6 + 6 + 5 marks 17
- (c) The Nitrates Directive 6 + 5 + 5 marks 16

(In each case, marks for definition, how it works, contribution to environmental protection)

[50 marks]

5. (a) (i) Supply curve 15 marks
(Title 1; Axis 4; Graph 10)
- (ii) Price elasticity 20 marks
((f incorrect, up to 15 m for workings))
- (iii) Result 2 marks
Explanation 3 marks 40

- (b) (i) Competing enterprises
- Example 5 marks (3 + 2)
Explanation 5 marks (3 + 2) 10

OR

- (ii) Length of time [as (b)(i)]

[50 marks]

6. (a) Explanation 10 marks (6 m + 4 m) 10
- (b) (i) Mobility of labour 14 marks (6 m + 5 m + 3 m)
- (ii) Mobility of land 13 marks (6 m + 5 m + 2 m)
- (iii) Mobility of capital 13 marks (6 m + 5 m + 2 m) 40

(The final mark in each case refers to current trends in Irish agriculture)

[50 marks]

LEAVING CERTIFICATE 2010
AGRICULTURAL ECONOMICS
HIGHER LEVEL
SUPPORT NOTES

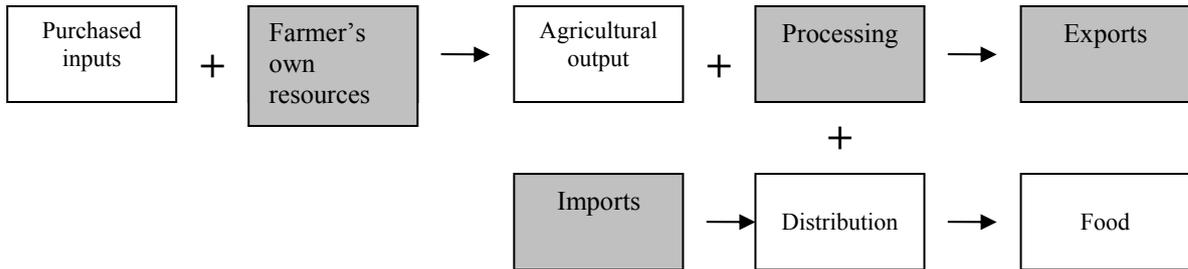
Marking Scheme and Support Notes for use with the Marking Scheme

In considering the marking scheme the following points should be noted:

- The support notes presented are not exclusive or definitive.
- The support notes in many cases contain key phrases which must appear in the candidate's answer in order to merit the assigned marks.
- Further relevant points of information presented by candidates are marked and rewarded on their merits.
- The detail required in any answer is determined by the context and the manner in which the question is asked and by the number of marks assigned to the answer in the examination paper. Requirements may therefore vary from year to year.

PART I (120 marks)

1.



2. Economics is the science of the allocation of **scarce** resources. On the **factor** market, demand for resources from firms interacts with the supply of resources from **households** to determine the prices of the factors of production.
3. Two possible implications for farmers of a carbon tax on fossil fuels:
 - (i) Reduced profit margin caused by increased input costs (e.g. fuel, contractors costs);
 - (ii) Increased propensity to substitute or otherwise reduce consumption of fossil fuels;
 - (iii) Reductions in the quantity supplied of agricultural output at a given price;
 - (iii) Emergence of an alternative market caused by increased demand for carbon neutral sources of energy (e.g. biofuels).
4. Gross domestic product (GDP) is a measure of the value of all goods and services produced in an economy in a given year.
5. Two variables, other than price, that affect demand:
 - (i) Consumer income;
 - (ii) Price of substitute/complimentary goods **or** related goods;
 - (iv) Consumer taste;
 - (v) Number of consumers;
 - (vi) Expectations regarding future prices.
6. Reasons for decline in overall farm income between 2007 and 2008:
 - (i) Increase in direct and overhead costs;
 - (ii) Lower output/yield in certain sectors (e.g. tillage and dairy).
 - (iii) Prices falling, especially in dairy.
7. Economic reason for government intervention in agriculture:
 - (i) To legislate/regulate the market e.g. food standards, consumer protection;
 - (ii) The provision of goods/services that the private sector is unwilling or unable to provide e.g. research by Teagasc;
 - (iii) To stabilise macroeconomic activity e.g. pricing policy, export subsidies;
 - (iv) To participate directly in production through firm ownership e.g. Bord na Mona, Coillte;
 - (v) To support farm incomes;
 - (vi) To compensate for farm losses due to bad weather, disease, etc.

8. Factor or intermediate inputs:

Input factor	Classification	Input factor	Classification
Feed	Intermediate input	Labour	Factor input
Buildings	Factor input	Fuel and oil	Intermediate input

9. Characteristics of Irish agriculture that can limit marketing efficiency:

- (i) Structure of farming (large number of small units);
- (ii) Geographical dispersion over a large area;
- (iii) Seasonal nature of supply;
- (iv) Bulky and perishable nature of agricultural produce;
- (v) The over-supply of international markets.

10. Present Value Formula:
$$\frac{20,000}{(1 + 5/100)^7}$$

11. **Import substitution:** replacing imports by domestically produced produce.

Example: Irish cheese (brie, mozzarella); mineral water; strawberries...

12. Precautions to minimise uncertainty regarding future income:

- (i) Insurance;
- (ii) Diversification;
- (iii) Selection of enterprise that tends to have stable prices;
- (iv) Contracts with purchasers regarding price;
- (v) Off-farm work;
- (vi) Investments.

13. The cross price elasticity of supply for joint products is positive. **Explain.**
An increase in the **price of one product** will lead to an increase in the **quantity supplied of the other product**, and *vice versa*.

14. Average product: amount of output per unit of input.

Marginal product: additional output per increment of input.

15. Characteristics of a perfectly competitive market:

- (i) Large number of buyers and sellers;
- (ii) Fully informed buyers and sellers (no information asymmetry);
- (iii) Uniform/homogenous products are produced by sellers;
- (iv) Sellers are price-takers.

16. The ratio of debt to net worth for a farm in 2009 was 0.18. **This means:**

The farm is solvent / the ratio is less than one.

The farm has a low debt to net worth ratio.

In 2009, 18% of capital was in the form of debt.

OR

In 2009, 82% of capital came from the farmer themselves.

- 17.** Two items of information required by a bank before granting a loan:
- (i) A full credit history
 - (ii) A full set of farm accounts
 - (iii) Asset and liability profile; deeds to property
 - (v) A cashflow statement / business plan.
- 18.** Adjusted farm area: is the total area of land excluding all non-agricultural land and adjusting for sub-standard land to make it comparable with the remainder of the farm.
- 19.** Advantages of joint farming (e.g. dairy partnership agreements):
- (i) Shared inputs may reduce individual input costs;
 - (ii) Sharing of expertise and innovation;
 - (iii) Economies of scale;
 - (iv) Aid in the establishment of new entrants to the market;
 - (v) Increased leisure time;
 - (vi) Less isolation.
- 20.** Objectives of CAP:
- (i) Increase agricultural productivity;
 - (ii) Ensure fair standard of living for agricultural population;
 - (iii) Stabilise markets;
 - (iv) Guarantee regular supply;
 - (v) Ensure reasonable prices for consumers.

Part II (200 Marks)

QUESTION 1.

- (a) Using the example of a tillage farm, distinguish between *agricultural output* and *agricultural production*.

Agricultural output refers to that amount of produce sold off all farms to all sectors of the economy or for export **in a given year**. It would not include any part of the produce used for further production, e.g., crops used to feed animals.

Agricultural production of a crop is the total quantity of the crop harvested **in a given year**. This would include products consumed on the farm and used for further production.

- (b)

	Calculations:	€ (millions)
	GAO	5,875
	<i>Less</i> Materials And Services	4,506
(i)	GAP at market price	1,369
	<i>Plus</i> Direct Payments	1,895
	<i>Less</i> Levies	87
(ii)	GAP at factor cost	3,177
	Less Depreciation	768
(iii)	NAP at factor cost	2,409
	<i>Less</i> Wages and Salaries	452
	<i>Less</i> Interest Payments	542
(iv)	FFI of National Farm	1,415

- (c) When comparing the incomes of farmers and of other groups in society, discuss the difficulties that arise in constructing an accurate measure of farm income.
- (i) Difficulties in estimating the value of farm output consumed by the household;
 - (ii) Difficulties in taking account of off-farm income and other sources of direct income;
 - (iii) Difficulties in valuing property or wealth;
 - (iv) Difficulties in taking account of the incidence of tax;
 - (v) Hours worked;
 - (vi) Amount of capital invested in the farm;
 - (vii) Management expertise.

QUESTION 2.

- (a) **Whole farm accounts:** a system of farm accounts that treats the **entire farm** as a single unit. The **outputs** of different enterprises (e.g. dairy and beef) are recorded as an **aggregate**. Total costs are divided between fixed costs and variable costs, and physical records are kept to assess technical efficiency.

Enterprise cost accounts: a system of farm accounts that treats each farm enterprise as a separate unit. Output and costs are allocated between the different enterprises to determine which enterprise is most profitable. Due to close integration between enterprises on many farms, it can be difficult to make meaningful allocations of certain costs (e.g. machine depreciation).

- (b) **Fixed cost:** a cost that **does not change** with the level of agricultural **output** (e.g. land, family labour, and some elements of capital). Fixed costs can only occur in the short-run, as all costs are variable in the long-run.

Opportunity cost: a cost associated with giving up (**foregoing**) the best alternative use to which a farmer could have applied his/her resources. In terms of farm employment, it would mean the earnings of the **next best** acceptable employment and this would depend on individual circumstances such as age, skill level, willingness to do non-farming work and the level of unemployment benefit.

- (c) **Term loan:** a medium term source of finance. It involves a regular schedule of repayments that includes both a component of the principle and interest. **Ownership** of the asset (e.g. farm machinery) **is retained by the borrower**, although it may be used as collateral on the loan.

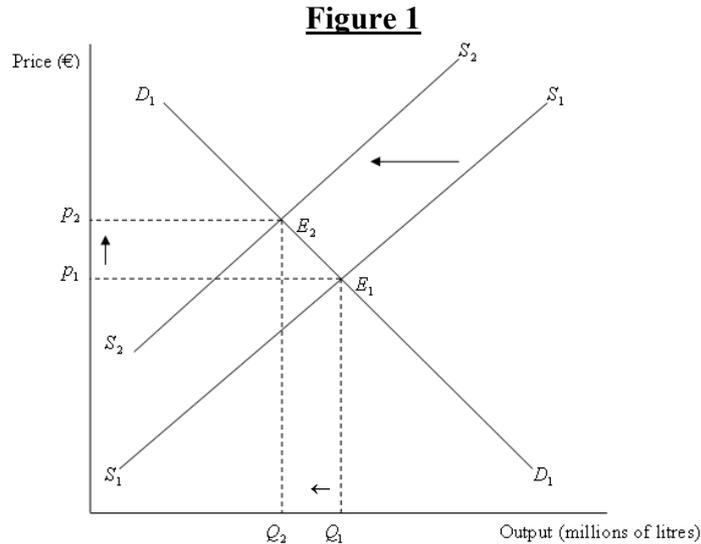
Leasing: also a medium term source of finance. An agreement, under which the **lender retains ownership** of an asset (e.g. farm equipment), and leases use of it at an agreed rate over a period of time. Lease agreements are usually a more costly source of finance than a term loan.

- (d) **Partial budget:** used to ascertain whether or not some **alteration in a farm system** will create an increase in farm income. For example, a farmer may decide to make more intensive use of the available fixed resource (e.g. land) or may decide to substitute one farming enterprise for another (e.g. switch from dairy to tillage). In both cases, the partial budget estimates the effect of the changes on the farmer's income. One side of the partial budget would show the extra costs incurred as well as the amount of current income sacrificed due to the changes made. The other side of the budget would show the extra revenue generated by the change as well as any cost savings made.

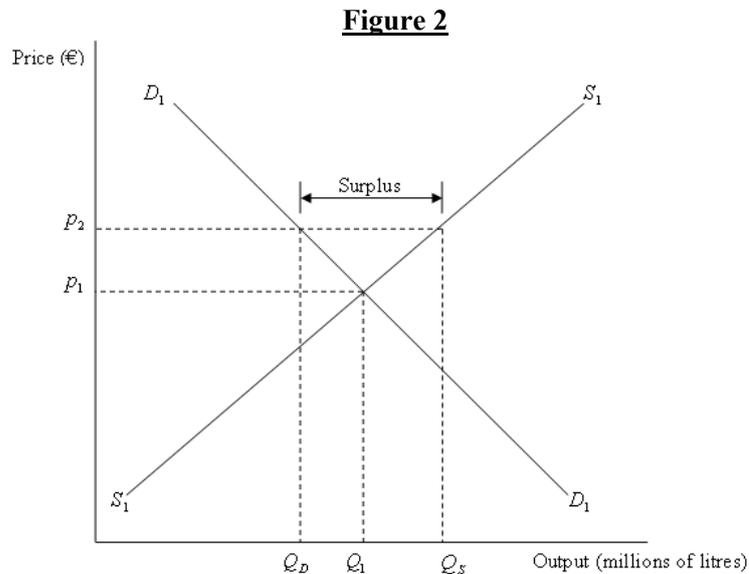
Capital budget: used to assess the financial **feasibility** and **profitability** of a farm's business plan. Feasibility refers to the availability of funds and can be established by a cash-flow budget. Profitability refers to the economic return on the investment and can be determined by investment appraisal.

QUESTION 3.

- (a) (i) Total Revenue = output x price = 5,500 million x €0.34 = €1,870 m.
- (ii) As a cost of production (input cost) an increase in fertilizer costs will **decrease supply** (S_1S_1 to S_2S_2). Therefore the equilibrium quantity of milk will **decrease** from Q_1 to Q_2 and equilibrium price of milk will **increase** from P_1 to P_2 . See Figure 1.



- (b) (i) At a price greater than the market equilibrium price the quantity demanded will be **less** than the quantity supplied, therefore creating a **market surplus**. See figure 2.



- (ii) The EU can buy up the surplus, and hold it in storage (intervention) for resale during times of shortage – this is used in the dairy sector. The EU could also impose quotas to limit the quantity supplied by farmers, with overproduction incurring a fine in the form of a levy.

QUESTION 4.

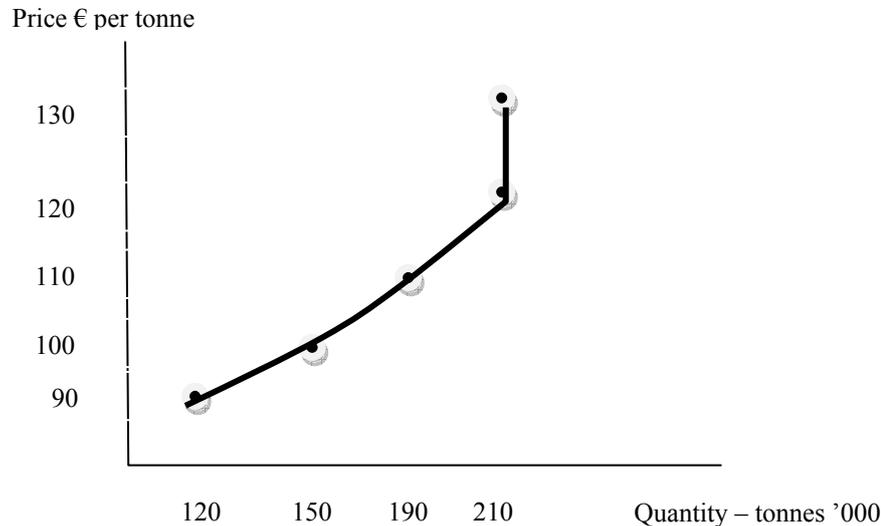
Explain how **each** of the following developments contributes to environmental protection:

- (a) **Single Farm Payments and Cross Compliance:** The SFP scheme, which was introduced in 2005, was intended to change the way the EU supported its farm sector by **removing the link between subsidies and production of specific crops**. It allowed farmers the freedom to produce what the market wanted. The Single Payment Scheme pays farmers for the land that they manage or own. In order for farmers to qualify for payments under the scheme, they have to follow certain conditions and rules. They must meet Cross Compliance standards. Cross Compliance **requires farmers to comply with EU guidelines** regarding animal and plant health, animal welfare, and the maintenance of all agricultural land in good agricultural and environmental conditions. **These guidelines must be met in order for farmers to receive their SFP without penalty**. Cross compliance is reinforced through farm inspections.
- (b) **REPS:** First introduced in 1994 to **establish farming practices and production methods** which reflect the increasing concern for conservation, landscape protection and wider environmental problems; protect wildlife habitats and endangered species of flora and fauna; and produce quality food in an extensive and **environmentally friendly manner**. Under REPS, farmers receive a basic payment per hectare in exchange for farming in an environmentally friendly manner and bringing about improvements in their existing farms. Farmers are eligible for additional payments for certain classifications of land (e.g. areas of special conservation) or for participating in Supplementary Measures (e.g. organic farming).
- (c) **Nitrates directive:** The Directive sets down regulations that aims **to return waters to good ecological status**. It has been implemented in Ireland since 1991 by way of extensive monitoring of nitrate levels in waters, the assessment of the trophic status of waters, the development and dissemination in 1996 of a Code of Good Agricultural Practice to Protect Waters from Pollution by Nitrates. Ireland's national Nitrates Action Programme was given statutory effect by the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2006. **This sets standards in relation to the timing and procedures for the application of fertilizers, the amount of fertilizers applied, and the capacity and management of fertilizer storage.**

QUESTION 5.

(a) (i) Supply curve:

Supply Curve for Wheat



(ii) Price Elasticity of supply =

$$\frac{\% \text{ change in quantity of a commodity supplied}}{\% \text{ change in price of that commodity}}$$

$$E_s = \frac{40 \times 100}{(150 + 190) \div 2} \div \frac{10 \times 100}{(100 + 110) \div 2} = 2.47$$

Also acceptable: $E_s = \Delta Q / \Delta P = 0.26 / 0.10 = 2.66$

(iii) Elastic: means that an increase of 2.66% or 2.47% in the quantity supplied results from each 1% increase in the price.

(b) Using an agricultural example, explain how the price elasticity of supply for a product may vary according to:

(i) **Closeness of competing enterprises on the farm:** a large number of close substitute enterprises will lead to **greater supply elasticity** as farmers switch from producing one output to another in response to a price change, e.g. tillage farming and the ease with which farmers can switch from wheat to barley production.

Or

(ii) **Length of time over which supply is allowed to adjust on the farm:** **In the long run, supply is more elastic** as farmers have time to adjust output to a change in price, e.g. if the price of beef increases, in the short-run farmers may lack the capital resources to increase output, but, in the long run, farmers have time to invest in new capital, husbandry techniques etc. and thereby increase the quantity supplied.

QUESTION 6.

(a) **Explain why ‘resource mobility’ is an important economic issue.**

In economics, the principles of **optimum** output are based on the assumption of resource mobility. The ability of resources **to move freely from one use to another** as economic circumstances change ensures their optimum use (technological efficiency). If this was not the case, then resources would be under-employed.

(b) With reference to current trends in Irish agriculture, outline the factors that affect each of the following:

(i) **Mobility of labour in agriculture:** the mobility of labour in agriculture is dependent on the availability of **off-farm employment**, the opportunity costs associated with off-farm employment, and the willingness of farmers to accept such jobs. Mobility inwards may be restricted by the fact that much agricultural labour is based on family labour. Much of the available off-farm employment in Ireland is created by the construction and manufacturing sectors. Recent years have seen a reduction in the availability of jobs and earnings in these sectors, which has restricted the mobility of agricultural labour.

(ii) **Mobility of land in agriculture:** mobility of land into agriculture is dependent on **land reclamation**. Mobility of land out of agriculture is determined by the **alternative uses** to which it can be put e.g. development, sports facilities. The recent downturn/credit crunch in the Irish construction sector has reduced the mobility of land out of agriculture.

(iii) **Mobility of capital in agriculture:** mobility of capital into agriculture is determined by the general economic environment/current low incomes. Mobility of capital out of agriculture is determined by the rate of depreciation. The recent downturn in the Irish economy has restricted the mobility of capital into agriculture. Over the past number of years, Irish farmers have also invested heavily in new farm buildings. As it can take many years for such assets to depreciate, the mobility of capital out of agriculture has been restricted. Less investment opportunities off farm. Greater uncertainty about the future might inhibit mobility of capital. Government requirements to meet environmental standards has required capital investment into agriculture.



Coimisiún na Scrúduithe Stáit

Marcanna Breise as ucht freagairt trí Ghaeilge

Léiríonn an tábla thíos an méid marcanna breise ba chóir a bhronnadh ar iarrthóirí a ghnóthaíonn níos mó ná 75% d'iomlán na marcanna.

N.B. Ba chóir marcanna de réir an ghnáthráta a bhronnadh ar iarrthóirí nach ngnóthaíonn níos mó ná 75% d'iomlán na marcanna don scrúdú. Ba chóir freisin an marc bónais sin a **shlánú síos**.

Tábla 320 @ 10%

Bain úsáid as an tábla seo i gcás na n-ábhar a bhfuil 320 marc san iomlán ag gabháil leo agus inarb é 10% gnáthráta an bhónais.

Bain úsáid as an ngnáthráta i gcás 240 marc agus faoina bhun sin. Os cionn an mharc sin, féach an tábla thíos.

Bunmharc	Marc Bónais
241 - 243	23
244 - 246	22
247 - 250	21
251 - 253	20
254 - 256	19
257 - 260	18
261 - 263	17
264 - 266	16
267 - 270	15
271 - 273	14
274 - 276	13
277 - 280	12

Bunmharc	Marc Bónais
281 - 283	11
284 - 286	10
287 - 290	9
291 - 293	8
294 - 296	7
297 - 300	6
301 - 303	5
304 - 306	4
307 - 310	3
311 - 313	2
314 - 316	1
317 - 320	0

