



Foundation Certificate in Marketing - Stage 1

MARKETING INFORMATION ANALYSIS I

FRIDAY, AUGUST 15, 2008. TIME: 2.00 pm - 5.00 pm

Please attempt **FIVE** questions.

(If more than the specified number of questions are attempted, delete those you do not wish to have marked. Otherwise the Examiner will mark the **FIRST** five questions in your Answer Book).

All questions carry equal marks.

Do **NOT** repeat question in answer, but show clearly the number of the question attempted on the appropriate page of the Answer Book.

1. (a) A research director is reviewing a survey which aimed to estimate the proportion of adults who have ever used a social networking site e.g. Facebook, YouTube or Bebo etc. The number of interviews in the random sample used was 1,500 and the proportion of users was reported to be 35%. Calculate the level of precision that will attach to the population estimate at 95% confidence. (10 marks)
- (b) A researcher is planning her research expenditure. Suppose that the costs of interviewing and data processing are estimated to be € per person, with fixed costs for the survey amounting to €1,000. She wants to use a simple random sample at 99% confidence level with a precision of \pm € in estimating monthly spending on music. What might be the total costs of this survey? Previous research showed the mean spending to be €40 with a standard deviation of €15. (10 marks)
2. (a) Select **either** an Z-chart or a Lorenz curve, show how it is constructed, sketch it and tell why it might be useful for business analysis. (5 marks)
- (b) Census 2006 of the CSO shows the age distribution to be

Age Group	Persons
0-14	864,449
15-24	632,732
25-44	1,345,873
45-64	928,868
65 years and over	467,926
Total	4,239,848

- (c) Show this age distribution in a histogram. (5 marks)
- (c) Calculate the mean age and the standard deviation (10 marks)

P.T.O.

3. (a) Calculate the value of a Laspeyres Overall Price Index for a product, which has constituent parts. The prices of these constituents in 1996 and in 2008 were found and their quantities are listed below.

Constituent	Price 1996	Price 2008	Quantity 1996	Quantity 2008
A	€30	increased by 40%	48 units	45 units
B	€25	increased by a third	20 units	28 units
C	€60	unchanged	14 units	16 units
D	€90	decreased by 10%	16 units	12 units

If the value of the Index in 1996 was 113 (base 1990=100), what is its value in 2008? (10 marks)

- (b) Describe how the Consumer Price Index (CPI) is constructed and how does the Central Statistics Office upgrade it? (5 marks)
- (c) Identify two uses of the CPI. (5 marks)

4. Overseas Visits were estimated by the CSO for the years 2000-2006 ('000's)

Visits to Ireland	2000	2001	2002	2003	2004	2005	2006
Total Overseas Visits	6,310	5,990	6,065	6,369	6,574	6,977	7,709

- (a) Graph the data. (5 marks)
- (b) Forecast visitor numbers for 2007, 2008 and 2009 based on these trends and show the forecasts on your graph. (10 marks)
- (c) Use an example to explain the meaning of the term “seasonally adjusted data”. (5 marks)

5. An accountant found the following data for the total production costs (Y Euro in thousands) and X (the number of units produced over the last twelve months).

Y	600	430	440	601	544	503	479	400	498
X	50	27	32	47	53	40	28	25	43

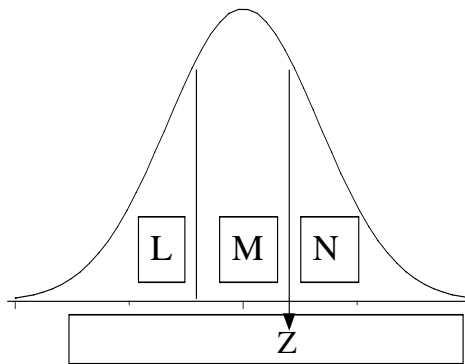
You are required

- (a) to plot a scatter diagram of Y against X. (5 marks)
 (b) to find the value of the correlation coefficient. (10 marks)
 (c) A Sales Manager ranked staff from 1 = 'Best' to 8 = 'Worst' in terms of selling potential at the end of a training course. A year later the number of units sold by each person was recorded.

Salesperson	A	B	C	D	E	F	G	H
Ranked by potential in training	7	4	2	6	1	8	3	5
Sales (units)	78	65	84	57	71	44	67	82

What is the correlation (if any) between the manager's assessment and sales results? (5 marks)

6. (a) Areas L, M, and N under this Normal distribution are equal. What is the value of the Z score that marks the division of M and N? Give your answer correct to 2 decimal places.



(5 marks)

- (b) A quality assurance system involved three inspection points – one for shape, one for colour and one for performance. The probability that each inspection point will incorrectly accept or reject an item is 0.01. What is the probability that a perfect item will be successfully passed through all inspection points? (5 marks)
 (c) In how many ways can a committee of 3 be selected from a group of 6 employees? (5 marks)
 (d) Calls to a customer helpdesk follow a Poisson distribution with an average of 3 calls per hour. What is the likelihood that this level of demand will be exceeded in any hour? (5 marks)

P.T.O.

7. (a) In a survey it was found that 60 out of 300 rural shoppers bought a new product. In a sample of 200 urban shoppers only 17% bought the product. Is this a statistically significant difference? Test at the 5% level. (10 marks)
- (b) An SPSS analysis using the CROSSTABS command showed the following table of results.

AGE	Eat fast food more than once a week	
	Yes	No
Under 25	350	100
25-44 years old	340	360
45 and over	110	340

Are age and eating of fast food more than once a week independent? Test at the 5% level of significance. (10 marks)

8. (a) Draft guidelines for writing a written market research report. (10 marks)
- (b) The table attached was produced by the Central Statistics Office in December 2007 and is from a special module of the Quarterly National Household Survey 2006. It is **essential** to quote the relevant statistics in ALL your answers.
- (i) What percent of all those 15 years and over are between 25 and 44?
 - (ii) Have more males than females completed either post leaving cert or third level courses?
 - (iii) What percentage of all over 15 year olds report that their health is either excellent or very good?
 - (iv) How many males reported that they participated in sport or physical exercise?
 - (v) How does educational level have impact on activity levels for females?
- (10 marks)

Table 1 Profile of population and persons aged 15 years and over who participated in sport or physical exercise in the previous 12 months, June-August 2006

	Population			Active Persons					
	All Persons 000	Male 000	Female 000	All Persons 000	%	Male 000	%	Female 000	%
State	3,398.4	1,686.5	1,711.9	2,135.8	62.8	1,034.0	61.3	1,101.8	64.4
Region									
Border	369.4	185.6	183.8	210.0	56.8	101.1	54.5	108.8	59.2
Midland	198.0	100.9	97.0	118.1	59.7	56.6	56.0	61.6	63.5
West	336.4	167.9	168.5	204.8	60.9	92.3	54.9	112.6	66.8
Dublin	969.7	469.5	500.2	640.6	66.1	321.8	68.5	318.8	63.7
Mid-East	365.6	182.5	183.1	243.3	66.5	117.2	64.2	126.1	68.9
Mid-West	287.4	144.6	142.8	179.8	62.5	86.0	59.5	93.7	65.6
South-East	369.3	185.6	183.7	228.0	61.7	111.9	60.3	116.1	63.2
South-West	502.6	249.8	252.8	311.2	61.9	147.1	58.9	164.1	64.9
Urban or rural location									
Urban areas	2,074.1	1,007.3	1,066.8	1,342.8	64.7	662.6	65.8	680.1	63.8
Rural areas	1,324.4	679.2	645.2	793.0	59.9	371.4	54.7	421.6	65.3
Age group									
15-24	642.2	325.8	316.3	461.6	71.9	247.7	76.0	213.9	67.6
25-34	732.7	372.6	360.1	490.4	66.9	243.5	65.3	247.0	68.6
35-44	616.0	310.2	305.8	406.7	66.0	190.4	61.4	216.3	70.7
45-54	521.7	261.1	260.6	336.2	64.4	152.6	58.5	183.6	70.4
55-64	412.3	207.2	205.1	242.9	58.9	109.1	52.7	133.8	65.2
65+	473.6	209.6	264.0	197.9	41.8	90.6	43.2	107.3	40.6
Highest education level attained									
Primary or below	726.4	370.9	355.4	309.7	42.6	152.8	41.2	156.9	44.1
Lower secondary	656.1	352.1	303.9	398.4	60.7	208.3	59.2	190.1	62.5
Higher secondary	835.4	400.3	435.0	560.8	67.1	269.1	67.2	291.8	67.1
Post leaving cert	298.0	151.2	146.8	192.5	64.6	89.6	59.2	102.9	70.1
Third level non degree	294.0	124.4	169.6	218.8	74.4	91.2	73.3	127.6	75.2
Third level degree or above	531.8	255.4	276.5	426.3	80.2	207.5	81.3	218.8	79.1
Other	56.8	32.1	24.7	29.2	51.4	15.5	48.2	13.8	55.6
Principal Economic Status									
At work	1,977.8	1,148.8	829.0	1,317.7	66.6	721.5	62.8	596.2	71.9
Unemployed	120.7	80.0	40.6	67.4	55.9	42.9	53.6	24.5	60.2
Student	348.0	161.6	186.3	269.6	77.5	135.9	84.1	133.7	71.8
Home duties	532.4	4.6	527.8	287.3	54.0	2.9	63.9	284.4	53.9
Retired	299.3	217.3	82.1	151.3	50.6	105.6	48.6	45.7	55.7
Others	120.3	74.1	46.2	42.5	35.3	25.2	34.0	17.3	37.4
Marital status									
Single	1,423.6	762.7	661.0	940.5	66.1	500.9	65.7	439.7	66.5
Married	1,659.9	841.9	818.0	1,049.8	63.2	496.2	58.9	553.6	67.7
Separated or divorced	123.8	44.1	79.8	72.2	58.3	22.6	51.2	49.6	62.2
Widowed	191.1	37.9	153.2	73.2	38.3	14.4	38.0	58.8	38.4

Health status									
Excellent	1,009.6	521.4	488.2	761.9	75.5	390.9	75.0	371.0	76.0
Very good	1,256.4	621.5	634.9	838.0	66.7	400.2	64.4	437.8	68.9
Good	790.6	379.6	411.0	436.4	55.2	196.5	51.8	240.0	58.4
Fair	279.4	134.5	144.9	90.1	32.2	42.6	31.6	47.5	32.8
Poor ¹	62.4	29.5	32.9	9.4	15.1	3.9	13.4	5.5	16.6
Disability									
Yes	474.1	225.8	248.3	180.5	38.1	85.2	37.7	95.4	38.4
No ¹	2,924.3	1,460.7	1,463.6	1,955.2	66.9	948.8	65.0	1,006.4	68.8

¹ Includes 'Don't know and 'Not stated'.

Quarterly National Household Survey
Sport and Physical Exercise
Quarter 3 2006