

**OLLSCOIL NA hÉIREANN, GAILLIMH  
NATIONAL UNIVERSITY OF IRELAND, GALWAY**

**SUMMER EXAMINATIONS 1999/2000**

**HIGHER DIPLOMA IN APPLIED SCIENCE  
(OCCUPATIONAL HEALTH AND HYGIENE)**

**DATA ANALYSIS (IE 877)**

**Dr. C. Hartley  
Professor C. Kelleher  
Ms. S. Friel  
Ms. S. NicGabhainn**

**Time Allowed: 2 HOURS**

**Answer THREE questions: One question from each Section  
Use separate answer books for each Section**

**SECTION A - COMPUTING**

**Question 1**

You own a small healthcare business which trades internationally. Describe a suitable computer system for your needs including details on the hard and software options.

**Question 2**

- (a) Explain which type of computer package you would use to create graphical images of data and the processes involved in doing so.
- (b) Statistical analysis of data can be a complex process. Discuss appropriate software tools, commenting on the different types of analysis possible and how you would perform them using the computer.

**SECTION B - STATISTICS**

**Question 3**

Write short notes on **three** of the following;

- a) The importance of determining the quality of your data
- b) The advantages of non-parametric data analysis techniques

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- c) The difference between 'relationship' and 'difference' research questions
- d) Why Chi Square is a useful data analysis technique
- e) The difference between correlation and causation

#### Question 4

Employees in a large catering outlet were asked to volunteer to help develop a healthy eating campaign for staff. Researchers are interested in whether there is an age related bias among those who volunteered.

Age Group	Volunteered	Were not interested
16-25	4	3
26-35	15	4
36-45	20	22

- a) What would your hypotheses be ?
- b) What are the main assumptions underlying Chi Square analyses?
- c) Conduct the appropriate Chi Square analyses to investigate whether these differences across categories are statistically significant.
- d) Employ an alpha of 0.05, to evaluate your obtained Chi Square.
- e) What conclusions can you draw from this analysis ?

### SECTION C - EPIDEMIOLOGY

#### Question 5

Outline the plan of a randomised controlled trial in a workforce setting. Describe in the context of the trial, the importance of

- i) Statistical significance
- ii) Power
- iii) Clinical significance

#### Question 6

Compare and contrast the advantages and disadvantages of case-control and prospective studies in the work environment. Place particular importance on the role of bias in such studies.