STATISTICS 2, S2 (4767) A2

Objectives

To extend students' ability to represent data in bivariate situations, with an emphasis on linear and rank order modelling, and associated hypothesis testing.

To introduce continuous probability distributions through the Normal distribution.

Assessment

Examination   (72 marks)
1 hour 30 minutes
There will be four questions each worth about 18 marks.

Assumed Knowledge

Candidates are expected to know the content of *C1* and *S1*. Candidates also need to know the series expansion of e^x.

Calculators

In the MEI Structured Mathematics specification, no calculator is allowed in the examination for *C1*. For all other units, including this one, a graphical calculator is allowed.

STATISTICS 2, S2		
Specification	**Ref.**	**Competence Statements**

		BIVARIATE DATA
Scatter diagram.	S2b1	Know how to draw a scatter diagram.
	2	Know the difference between dependent and independent variables.
Pearson's product moment correlation coefficient (pmcc).	3	Know how to calculate the pmcc from raw data or summary statistics.
	4	Know how to carry out hypothesis tests using the pmcc and tables of critical values.
Spearman's Rank correlation coefficient.	5	Know how to calculate Spearman's rank correlation coefficient from raw data or summary statistics.
	6	Know how to carry out hypothesis tests using Spearman's rank correlation coefficient and tables of critical values.
Regression line for a random variable on a non-random variable.	7	Know how to calculate the equation of the least squares regression line using raw data or summary statistics.
	8	Know the meaning of the term residual and be able to calculate and interpret residuals.

Caution: This document is provided for your convenience and is not the full specification. To find that go back to the previous page and click on the connection to OCR.

STATISTICS 2, S2		
Specification	**Ref.**	**Competence Statements**

POISSON DISTRIBUTION		
Situations leading to a Poisson distribution.	S2P1	Know the situations under which the Poisson distribution is likely to be an appropriate model.
Calculations of probability and of expected frequencies.	2	Be able to calculate the probabilities within a Poisson distribution.
	3	Be able to use the Poisson distribution as an approximation to the binomial distribution, and know when to do so.
The mean and variance of the Poisson distribution.	4	Know the mean and variance of a Poisson distribution.
The sum of independent Poisson distributions.	5	Know that the sum of two or more independent Poisson distributions is also a Poisson distribution.

Caution: **This document is provided for your convenience and is not the full specification.**
To find that go back to the previous page and click on the connection to OCR.

STATISTICS 2, S2		
Specification	**Ref.**	**Competence Statements**

CONTINGENCY TABLES		
The χ^2 test.	S2H1	Be able to apply the χ^2 test to a contingency table.
	2	Be able to interpret the results of a χ^2 test.

NORMAL DISTRIBUTION		
The use of the Normal distribution.	S2N1	Be able to use the Normal distribution as a model.
	2	Be able to standardise a Normal variable and use the Normal distribution tables.
The use of the Normal distribution as an approximation to the binomial and Poisson distributions.	3	Be able to use the Normal distribution as an approximation to the binomial distribution and know when it is appropriate to do so.
	4	Be able to use the Normal distribution as an approximation to the Poisson distribution and know when it is appropriate to do so.
	5	Know when to use a continuity correction and be able to do so.
Hypothesis test for a single mean.	6	Be able to carry out a hypothesis test for a single mean using the Normal distribution and know when it is appropriate to do so.

Caution: **This document is provided for your convenience and is not the full specification. To find that go back to the previous page and click on the connection to OCR.**