AQA – Chi squared test for association – AS Further Mathematics Statistics

1. June/2020/Paper_2/No.2

   A χ^2 test is carried out in a school to test for association between the class a student belongs to and the number of times they are late to school in a week.

   The contingency table below gives the expected values for the test.

   Number of times late

		0	1	2	3	4
	A	8.12	14	15.12	14	4.76
Class	**B**	8.99	15.5	16.74	15.5	5.27
	C	11.89	20.5	22.14	20.5	6.97

   Find a possible value for the degrees of freedom for the test.

   Circle your answer.

   [1 mark]

   6   8   12   15

2. June/2020/Paper_2/No.7

A restaurant has asked Sylvia to conduct a χ^2 test for association between meal ordered and age of customer.

(a) State the hypotheses that Sylvia should use for her test.

[1 mark]

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(b) Sylvia correctly calculates her value of the test statistic to be 44.1

She uses a 5% level of significance and the degrees of freedom for the test is 30

Sylvia accepts the null hypothesis.

Explain whether or not Sylvia was correct to accept the null hypothesis.

[4 marks]

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(c)   State in context the correct conclusion to Sylvia's test.

[1 mark]

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State in context the correct conclusion to Sylvia's test.

[1 mark]

3. June/2019/Paper_2/No.7

Mohammed is conducting a medical trial to study the effect of two drugs, *A* and *B*, on the amount of time it takes to recover from a particular illness.

Drug *A* is used by one group of 60 patients and drug *B* is used by a second group of 60 patients.

The results are summarised in the table:

		Recovery time			
		1 week	2 weeks	3 weeks	Total
Drug	**A**	36	19	5	60
	B	21	24	15	60
	Total	57	43	20	120

Mohammed claims that there is an association between recovery time and drug used.

(a) Investigate Mohammed's claim using the 1% level of significance.

[7 marks]

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(b)   Interpret any association between recovery time and the drug used.

[2 marks]

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