

### Q1

1 Point

What does the chi-squared distribution typically model in statistics?

- ☒ The sum of squares of standard normal variables
- ☐ The distribution of a single normal variable
- ☐ The distribution of sample means
- ☐ The sum of squares of any independent variables

### Q2

1 Point

What factor primarily determines the shape of a chi-squared distribution?

- ☒ The degrees of freedom
- ☐ The mean of the sample data
- ☐ The number of trials
- ☐ The sample size

### Q3

1 Point

Which aspect is crucial when determining the bins for a chi-squared goodness of fit test?

- ☐ Bins should be of equal size
- ☐ Each bin should contain at least 30 observations
- ☐ The number of bins should equal the number of observations
- ☒ Each bin should have an expected frequency ( $E_i$ ) of at least 5

**Q4****1 Point**

How is the test statistic for a chi-squared test calculated?

- ☐ Difference between the mean of the observed and expected counts
- ☐ Ratio of the variance of the observed and expected counts
- ☒ Sum of the squared differences between observed and expected counts, divided by the expected counts
- ☐ Sum of the observed counts divided by the expected counts

**Q5****1 Point**

In the context of chi-squared tests for distributions, the null hypothesis usually asserts that:

- ☐ The observed data does not follow the expected theoretical distribution
- ☒ The observed data follows the expected theoretical distribution
- ☐ The observed data is normally distributed
- ☐ The observed and expected data are independent of each other

**Q6****1 Point**

What does the 'degrees of freedom' in a chi-squared test refer to?

- ☐ The total number of observations in the sample
- ☐ The number of parameters being estimated in the model
- ☐ The number of categories in the test
- ☒ The number of categories minus one