

Hypothesis testing Questions

Latest Hypothesis testing MCQ Objective Questions

FREE

India's #1 Learning Platform

Start Complete Exam Preparation

Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes

 Download App



Question 1:

[View this Question Online >](#)

Arrange the following steps in the process of hypothesis testing in proper sequence:

- A. Select the level of significance
- B. Setup null and alternative hypothesis
- C. Establish the decision rule
- D. Performance computations
- E. Select test statistics
- F. Draw conclusion

Choose the *correct* answer from the options given below

1. A, B, C, D, E, F

2. A, B, E, D, C, F

3. B, A, C, D, E, F

4. B, A, E, C, D, F

Answer (Detailed Solution Below)

Option 4 : B, A, E, C, D, F

Option 1: D, A, E, C, D, F

Supercoaching

India's Super Teachers for all
govt. exams Under One Roof

FREE Demo Classes Available*

Enroll For Free Now



Hypothesis testing Question 1 Detailed Solution

The correct answer is B, A, E, C, D, F.

Key Points

Using statistics, hypothesis testing is a formal process for examining our theories about the world. Scientists most frequently employ it to examine particular hypotheses that result from theories.

Important Points


Process of Hypothesis Testing are as follows:

1. Setup Null and Alternate Hypothesis
2. Select the Significance Level
3. Select Test Statistics
4. Establish the Decision Rule
5. Performance Computations
6. Draw Conclusions

FREE

India's #1 Learning Platform

Start Complete Exam Preparation

 Trusted by **1,86,00,449+** Students



Daily Live
MasterClasses



Practice
Question Bank



Mock Tests
& Quizzes



Download App



Question 2:

[View this Question Online >](#)

Which among the following are non-parametric statistics?

- A. t-test
- B. F-test
- C. Spearman's rank order correlation
- D. Mann-Whitney-Wilcoxon test
- E. Kendall coefficient of concordance

Choose the *correct* answer from the options given below :

1. A, B and C only
2. B, C and D only
3. B, D and E only
4. C, D and E only

Answer (Detailed Solution Below)

Option 4 : C, D and E only

Hypothesis testing Question 2 Detailed Solution

In statistics, the **parametric test relies on statistical distributions in data whereas nonparametric do not depend on any distribution**. Non-parametric does not make any assumptions and measures the central tendency with the median value

Key Points

Nonparametric tests are methods of statistical analysis that do not require a distribution to meet the assumptions necessary to be analyzed.

They are sometimes referred to as distribution-free tests. Following are the non-parametric tests

- **Spearman's Rank Correlation:**

- In statistics, Spearman's rank correlation coefficient, named after Charles Spearman, is a nonparametric measure of rank correlation.
- It assesses how well the **relationship between two variables can be described using a monotonic function**.

- **Mann-Whitney-Wilcoxon test:**

- The Mann-Whitney U test is a **nonparametric version of the independent samples t-test**.
- The test primarily deals with two independent samples that contain ordinal data.

- **Kendall coefficient of concordance:**

- Kendall's W, also known as Kendall's coefficient of concordance, is a **non-parametric statistic**.
- It is a normalization of the statistic of the Friedman test and can be used for assessing agreement among raters.

Hence, the nonparametric tests include Spearman's rank-order correlation, Mann-Whitney-Wilcoxon

Hence, the nonparametric tests include Spearman's rank order correlation, Mann-Whitney U-test, and Kendall's coefficient of concordance.

Therefore, options C, D, and E are correct.

Additional Information


T-Test	F-test
<ul style="list-style-type: none">• The T-test is a univariate hypothesis test, that is applied when the standard deviation is not known and the sample size is small.• T-statistic follows Student t-distribution, under the null hypothesis.	<ul style="list-style-type: none">• The F-Test is a way that we compare the model that we have calculated to the overall mean of the data.• F-test is a statistical test, that determines the equality of the variances of the two normal populations.


FREE


India's #1 Learning Platform

Start Complete Exam Preparation

Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes





Question 3:

[View this Question Online >](#)

Kinked demand curve hypothesis was put forward by

1. Paul M Sweezy

2. Augustin Cournot

3. Bertrand

4. Stackelberg

Answer (Detailed Solution Below)

Option 1 : Paul M Sweezy

Hypothesis testing Question 3 Detailed Solution

The correct answer is **Paul M Sweezy**

Key Points


- **American economist Sweezy came up with the kinked demand curve hypothesis** to explain the reason behind this price rigidity under oligopoly.
- According to the kinked demand curve hypothesis, **the demand curve facing an oligopolist has a kink at the level of the prevailing price.**
- This kink exists because of two reasons:
 1. The segment above the prevailing price level is highly elastic.
 2. The segment below the prevailing price level is inelastic.

FREE

India's #1 Learning Platform


Start Complete Exam Preparation


Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes





Question 4:

[View this Question Online >](#)

Match the following:

List - A	List - B

a) Type I error	i) Small standard error
b) Large sample	ii) Non-parametric
c) Multiple regression	iii) False positive
d) Chi-square test	iv) One dependent variable

1. (a) - (iv), (b) - (i), (c) - (ii), (d) - (iii)

2. (a) - (iii), (b) - (i), (c) - (iv), (d) - (ii)

3. (a) - (ii), (b) - (iii), (c) - (i), (d) - (iv)

4. (a) - (iii), (b) - (iv), (c) - (i), (d) - (ii)

Answer (Detailed Solution Below)

Option 2 : (a) - (iii), (b) - (i), (c) - (iv), (d) - (ii)

Hypothesis testing Question 4 Detailed Solution



Key-Points

A	
a) Type I error	<ul style="list-style-type: none"> • Type I error is also known as false positive and occurs when a researcher incorrectly rejects a true hypothesis. • The probability of making a type I error is represented by alpha level (α), which is the p-value below which the researcher rejects the null hypothesis.
b) Large sample	<ul style="list-style-type: none"> • The standard error is inversely proportional to sample size i.e. the larger the sample size, the smaller the standard error because the statistic will approach the actual value and vice-versa. • In other words, with bigger sample sizes the sample mean becomes a more accurate estimate of the parametric mean, so the standard error of the mean becomes smaller.
c) Multiple regression	<ul style="list-style-type: none"> • Multiple regression represents the relationship between multiple independent (predictor) variables and one dependent (criterion) variable. • A dependent variable is modeled as a function of several independent variables with corresponding coefficients, along with the constant term. • It requires two or more predictor variables and this is why it is known as Multiple regression.
d) Chi-square test	<ul style="list-style-type: none"> • The Chi-square test is a non-parametric tool designed to analyze group differences when the dependent variable is measured at a nominal level. • The Chi-square statistics compare the size of any discrepancies between the expected results and the actual results, given the size of the sample and the number of variables in the relationship.

Therefore, it is clear from the above explanation that option 2) is the correct answer.

Start Complete Exam Preparation

Daily Live
MasterClassesPractice
Question BankMock Tests
& Quizzes

Download App



Question 5:

[View this Question Online >](#)

The error committed by rejecting an applicant who would have been successful on the job is called

1. True negative error
2. False negative error
3. False positive error
4. True positive error

 Answer (Detailed Solution Below)

Option 2 : False negative error

Hypothesis testing Question 5 Detailed Solution

Key-Points**False negative error:**

- A false negative error is a test result that wrongly indicates a condition does not hold.
- For example, when a person is guilty of a crime or **when an applicant who can be successful on the job is rejected**, these are false negatives.
- The condition "a person is guilty", or "an applicant can be successful" holds, but the test (the trial in the court of law or the interview) fails to realize this condition, and wrongly decides that the person is not guilty or the applicant is not fit for the job.
- A false negative error is a **type II error** occurring in a test where a single condition is checked and the result of the test is erroneous, that the condition is absent.

Therefore, the error committed by rejecting an applicant who would have been successful on the job is called a False negative error.



Additional Information

False positive error:

- A false positive error is a result that indicates a given condition exists when it does not.
- For example, the conviction of an innocent person, or selection of an applicant thinking that he would be successful but in reality, he would be not.
- A false positive is a **type I error** where the test is checking a single condition and wrongly gives a positive decision.

True positive error:

- A true positive is an outcome where the model correctly predicts the **positive class**.
- For example, the umpire gives a batsman *Not Out when he is Not Out*.

True negative error:

- A true negative error is an outcome where the model correctly predicts the **negative class**.
- For example, the umpire gives a batsman *Out when he is Out*.

Top Hypothesis testing MCQ Objective Questions

FREE

India's #1 Learning Platform

Start Complete Exam Preparation

Daily Live MasterClasses

Practice Question Bank

Mock Tests & Quizzes

Question 6

[View this Question Online >](#)

Goodness of fit of a distribution is tested by

1. t - test
2. F - test
3. Chi - square test

Answer (Detailed Solution Below)

Option 3 : Chi - square test

Hypothesis testing Question 6 Detailed Solution

The goodness of fit:

- The **goodness of fit** test is a *statistical hypothesis test to see how well sample data fit a distribution from a population with a normal distribution.*
- Put differently, this test shows if your sample data represents the data you would expect to find in the actual population or if it is somehow skewed.
- Goodness-of-fit **establishes the discrepancy** between the observed values and those that would be expected of the model in a normal distribution case.
- **There are multiple methods for determining goodness-of-fit. Some of the most popular methods used in statistics include the chi-square, the Kolmogorov-Smirnov test, the Anderson-Darling test, and the Shapiro-Wilk test.**
- Goodness-of-fit tests are often used in business decision making. In order to calculate a chi-square goodness-of-fit, it is necessary to first state the null hypothesis and the alternative hypothesis, choose a significance level (such as $\alpha = 0.5$) and determine the critical value.



Key-Points

1. **The most common goodness-of-fit test is the chi-square test**, typically used for discrete distributions.
2. The chi-square test is used exclusively for data put into classes (bins), and it requires a sufficient sample size in order to produce accurate results.
3. Goodness-of-fit tests are commonly used to test for the normality of residuals or to determine whether two samples are gathered from identical distributions.

Thus, option 3 is the correct answer.



Additional Information

1. T-Test:

- The t-test tells you how significant the *differences between groups* are; In other words it lets you know if those differences (measured in means) could have happened by chance.
- The t-test is one of many tests used for the purpose of **hypothesis testing in statistics.**

2. F Test:

- An F-test is conducted by the researcher on the basis of the F statistic.
- The F statistic is defined as the **ratio** between the **two independent chi-square variates** that are divided by their respective degree of freedom.
- The F-test follows the Snedecor's F- distribution. The F-test is used by a researcher in order to carry out the test for the **equality of the two population variances.**
- If a researcher wants to test whether or not two independent samples have been drawn from a normal population with the same variability, then he generally employs the F-test.

- The F-test is also used by the researcher to determine whether or not the two independent estimates of the population variances are **homogeneous** in nature.

3. Z Test:

- A Z-test is a type of hypothesis test—a way for you to figure out if results from a **test are valid or repeatable**.
- For example, if someone said they had found a new drug that cures cancer, you would want to be sure it was probably true.
- A hypothesis test will tell you if it's probably true, or probably not true. A Z test is used when your data is approximately normally distributed (i.e. the data has the shape of a bell curve when you graph it).

FREE

India's #1 Learning Platform

Start Complete Exam Preparation


Trusted by **1,86,00,449+** Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes

 Download App



Question 7

[View this Question Online >](#)

Arrange the following steps in the process of hypothesis testing in proper sequence:

- Select the level of significance
- Setup null and alternative hypothesis
- Establish the decision rule
- Performance computations
- Select test statistics
- Draw conclusion

Choose the *correct* answer from the options given below

1. A, B, C, D, E, F

2. A, B, E, D, C, F

3. B, A, C, D, E, F

4. B, A, E, C, D, F

Answer (Detailed Solution Below)

Option 4 : B, A, E, C, D, F

Hypothesis testing Question 7 Detailed Solution

The correct answer is B, A, E, C, D, F.

Key Points

Using statistics, hypothesis testing is a formal process for examining our theories about the world. Scientists most frequently employ it to examine particular hypotheses that result from theories.

Important Points

Process of Hypothesis Testing are as follows:

1. Setup Null and Alternate Hypothesis
2. Select the Significance Level
3. Select Test Statistics
4. Establish the Decision Rule
5. Performance Computations
6. Draw Conclusions

FREE


India's #1 Learning Platform

Start Complete Exam Preparation

Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes

 Download App



Question 8

[View this Question Online >](#)

Match the items of List - II with the items of List - I and select the code of correct matching

List - I	List - II
(a) Chi-square Test	(i) Testing the significance of the differences of the mean values among more than two sample groups.
(b) ANOVA (F-test)	(ii) Testing the goodness of fit of a distribution
(c) Z - test	(iii) Testing the significance of the difference of the mean values between two large sized samples
(d) t - test	(iv) Testing the significance of the difference of the mean values between two small sized samples when population standard deviation is not available

1. (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)

2. (a) - (iv), (b) - (iii), (b) - (ii), (d) - (i)

3. (a) - (i), (b) - (ii), (c) - (iv), (d) - (iii)

4. (a) - (ii), (b) - (i), (c) - (iii), (d) - (iv)

Answer (Detailed Solution Below)

Option 4 : (a) - (ii), (b) - (i), (c) - (iii), (d) - (iv)

Hypothesis testing Question 8 Detailed Solution

Option 4 is the correct sequence.

- **Chi-square Test** tests the goodness of fit of a distribution.
- **ANOVA (F-test)** tests the significance of the differences of the mean values among more than two sample groups.
- **Z - test**- Testing the significance of the difference of the mean values between two large-sized samples.
- **t-test**- Testing the significance of the difference of the mean values between two small-sized samples when population standard deviation is not available.



Additional Information

The **Chi-Square Test** of Independence determines whether there is an **association** between

The **Chi-Square test** of independence determines whether there is an **association** between categorical variables (i.e., whether the variables are independent or related). It is a **nonparametric** test.

The **one-way analysis of variance** (ANOVA) is used to determine whether there are any statistically significant **differences between the means** of three or more independent (unrelated) groups

A **z-test** is a statistical test to determine whether two population means are different when the variances are known and the **sample size is large**. It can be used to test hypotheses in which the z-test follows a normal distribution. A z-statistic, or z-score, is a number representing the result from the z-test


A **t-test** is a statistical test that is used to compare the means of two groups. It is often used in hypothesis testing to determine whether a process or treatment actually has an effect on the population of interest, or whether **two groups are different** from one another.


FREE


India's #1 Learning Platform


Start Complete Exam Preparation


Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes





Question 9

[View this Question Online >](#)

Which among the following are non-parametric statistics?

- A. t-test
- B. F-test
- C. Spearman's rank order correlation
- D. Mann-Whitney-Wilcoxon test
- E. Kendall coefficient of concordance

Choose the *correct* answer from the options given below :

1. A, B and C only

2. B, C and D only

3. B, D and E only

4. C, D and E only

Answer (Detailed Solution Below)

Option 4 : C, D and E only

Hypothesis testing Question 9 Detailed Solution

In statistics, the **parametric test** relies on statistical distributions in data whereas **nonparametric** do **not depend on any distribution**. Non-parametric does not make any assumptions and measures the central tendency with the median value

Key Points

Nonparametric tests are methods of statistical analysis that do not require a distribution to meet the assumptions necessary to be analyzed.

They are sometimes referred to as distribution-free tests. Following are the non-parametric tests

- **Spearman's Rank Correlation:**
 - In statistics, Spearman's rank correlation coefficient, named after Charles Spearman, is a nonparametric measure of rank correlation.
 - It assesses how well the **relationship between two variables can be described using a monotonic function**.
- **Mann-Whitney-Wilcoxon test:**
 - The Mann-Whitney U test is a **nonparametric version of the independent samples t-test**.
 - The test primarily deals with two independent samples that contain ordinal data.
- **Kendall coefficient of concordance:**
 - Kendall's W, also known as Kendall's coefficient of concordance, is **a non-parametric statistic**.
 - It is a normalization of the statistic of the Friedman test and can be used for assessing agreement among raters.

FREE

India's #1 Learning Platform

Start Complete Exam Preparation

Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes

 Download App



Question 10

[View this Question Online >](#)

Match the tests with suitable situations of their application for hypothesis-testing:

	Test		Situation
(a)	z-test	(i)	Comparing the differences in the mean values of more than two sample groups (Parametric data)
(b)	ANOVA	(ii)	Testing the significance of the difference between averages of two large-sized sample groups (Parametric data)
(c)	Chi-Square Test	(iii)	Comparing the differences in the mean values of more than two sample groups (Non - parametric data)
(d)	Kruskal - Wallis	(iv)	Testing the significance of the association between two attributes

Choose the correct option from those given below

1. (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)
2. (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)
3. (a) - (ii), (b) - (iii), (c) - (i), (d) - (iv)
4. (a) - (i), (b) - (iv), (c) - (ii), (d) - (iii)

Answer (Detailed Solution Below)

Option 2 : (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)

FREE

India's #1 Learning Platform

Start Complete Exam Preparation

Trusted by **1,86,00,449+** Students



Daily Live
MasterClasses



Practice
Question Bank



Mock Tests
& Quizzes



Download App



Question 11:

[View this Question Online >](#)

Kinked demand curve hypothesis was put forward by

1. Paul M Sweezy
2. Augustin Cournot
3. Bertrand
4. Stackelberg

Answer (Detailed Solution Below)


Option 1 : Paul M Sweezy


FREE


India's #1 Learning Platform


Start Complete Exam Preparation


Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes





Question 12:

Goodness of fit of a distribution is tested by

1. t - test
2. F - test
3. Chi - square test
4. Z - test

Answer ([Detailed Solution Below](#))


Option 3 : Chi - square test


FREE


India's #1 Learning Platform


Start Complete Exam Preparation


Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes

 Download App



Question 13:

[View this Question Online >](#)

Which test we normally apply for Qualitative data ?

1. 't' test
2. 'F' test
3. χ^2 chi-square test

4. 'z' test

Answer (Detailed Solution Below)

Option 3 : χ^2 chi-square test

FREE

India's #1 Learning Platform

Start Complete Exam Preparation

Trusted by 1,86,00,449+ Students

 Daily Live MasterClasses

 Practice Question Bank

 Mock Tests & Quizzes

 Download App



Question 14:

[View this Question Online >](#)

Arrange the following steps in the process of hypothesis testing in proper sequence:

- A. Select the level of significance
- B. Setup null and alternative hypothesis
- C. Establish the decision rule
- D. Performance computations
- E. Select test statistics
- F. Draw conclusion

Choose the *correct* answer from the options given below

- 1. A, B, C, D, E, F
- 2. A, B, E, D, C, F
- 3. B, A, C, D, E, F
- 4. B, A, E, C, D, F

Answer (Detailed Solution Below)

Option 4 : B, A, E, C, D, F

FREE

India's #1 Learning Platform
Start Complete Exam Preparation

Trusted by 1,86,00,449+ Students

Daily Live MasterClasses

Practice Question Bank

Mock Tests & Quizzes

Download App

Question 15:

[View this Question Online >](#)

Match the items of List - II with the items of List - I and select the code of correct matching

List - I	List - II
(a) Chi-square Test	(i) Testing the significance of the differences of the mean values among more than two sample groups.
(b) ANOVA (F-test)	(ii) Testing the goodness of fit of a distribution
(c) Z - test	(iii) Testing the significance of the difference of the mean values between two large sized samples
(d) t - test	(iv) Testing the significance of the difference of the mean values between two small sized samples when population standard deviation is not available

1. (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)

2. (a) - (iv), (b) - (iii), (b) - (ii), (d) - (i)

3. (a) - (i), (b) - (ii), (c) - (iv), (d) - (iii)

4. (a) - (ii), (b) - (i), (c) - (iii), (d) - (iv)

Answer ([Detailed Solution Below](#))

Option 4 : (a) - (ii), (b) - (i), (c) - (iii), (d) - (iv)