Question	Option 1	Option 2	Option 3	Option 4	Answer
UNIT-1					
The probability of drawing a card of King from a pack of cards is……	1/4	1/11	1/12	1/13	1/13
In tossing a coin, the probability of getting head is ……...	1/2	1/3	2	0	1/2
The probability that a leap year selected at random contain 53 Sundays is…….	1/7	2/7	3/7	1/53	2/7
A bag contains 7 red and 8 black balls. The probability of drawing a red ball is …….	7/15	8/15	1/15	14/15	7/15
The probability of drawing a card of clubs from a pack of 52 cards is ……..	0	(1/3)	2/4	1/4	1/4
The probability of drawing an ace or queen card from a pack of 52 cards is …	1/13	1/4	2/13	1/52	1/13
The total probability is is always equal to……..	0.5	2	1	0	1
A variable whose value is a number determined by the outcome of a random experiment is called a……	Sample	Random variable	Outcome	Event	Random variable
If a random variable takes only a finite or a countable number of values, it is called ……..	Finite random space	Continous random variable	Discrete random variable	Infinite random variable	Discrete random variable
A continuous random variable is a random variable X which can take any value between….	Interval	Limits	Finite values	Infinite values	Interval
Suppose that X be a discrete or continuous random variable, then distribution function is a……function of x.	Non-decreasing	Decreasing	Neither increasing nor decreasing	Can be increasing and decreasing	Non-decreasing
The function f(x) = 5x^4 , 0 < x < 1 can be a…….. of a random variable X.	Probability mass function	Probability density function	Distribution function	Exponential function	Probability density function
If F(x) is the cumulative distribution function of a continuous random variable X with p.d.f f(x) then……	F'(x) = f(x)	F'(x) not equal to f(x)	F'(x) < f(x)	F'(x) >f(x)	F'(x) = f(x)
If X is a continuous random variable with p.d.f f(x), then F(b)-F(a)=	P(a>X>b)	P(a<X>b)	P(b<X<a)	P(a<X<b)	P(a<X<b)
Which one of the following represents the best estimate of the population mean?	The sample mean	The mean of several sample means	The mode of several sample means	The median of several sample means	The mean of several sample means
Which of the following statements are true?	Parameters describe samples and statistics describe populations	Statistics describe samples and populations	Parameters describe populations and statistics describe samples	Both (a) and (b) above	Parameters describe populations and statistics describe samples
The narrower the confidence intervals:	The more confidence you can place in your results	The less you can rely on your results	The greater the chance that your results were due to sampling error	Correlation between the two scores	The more confidence you can place in your results
Statistical significance:	Is directly equivalent to psychological importance	Does not necessarily mean that results are psychologically important	Depends on sample size	Both (b) and (c) above	Both (b) and (c) above
All other things being equal:	The more sample size increases, the more power decreases	The more sample size increases, the more power increases	Sample size has no relationship to power	The more sample size increases, the more indeterminate the power	The more sample size increases, the more power increases
Find probability of drawing diamond and a heart card from a pack of 52 cards?	13/102	1/4	2/13	7/16	13/102
The probability of drawing king and queen card from a pack of 52 cards is	13/102	1/4	2/13	8/663	8/663
Two coins are tossed five times, find the probability of getting an even number of heads ?	0.25	1	0.4	0.25	0.25
All other things being equal, the more powerful the statistical test:	The wider the confidence intervals	The more likely the confidence interval will	The narrower the confidence interval	The smaller the sample size	The narrower the confidence interval
Power can be calculated by a knowledge of:	The statistical test, the type of design and the effect size	The statistical test, the criterion significance level and the effect size	The criterion significance level, the effect size and the type of design	The criterion significance level, the effect size and the sample size	The criterion significance level, the effect size and the sample size
Which of the following constitute continuous variables?	Anxiety rated on a scale of 1 to 5 where 1 equals not anxious, 3 equals moderately anxious and 5 equals highly anxious	Gender	Temperature	Intelligence	Temperature
A continuous variable can be described as:	Able to take only certain discrete values within a range of scores	Able to take any value within a range of scores	Being made up of categories	Being made up of variables	Able to take any value within a range of scores
Which one of the following represents the best estimate of the population mean?	The sample mean	The mean of several sample means	The mode of several sample means	The median of several sample means	The mean of several sample means
Which one of the following represents the best estimate of the population mean?	The sample mean	The mean of several sample means	The mode of several sample means	The median of several sample means	The mean of several sample means
The narrower the confidence intervals:	The more confidence you can place in your results	The less you can rely on your results	The greater the chance that your results were due to sampling error	Correlation between the two scores	The more confidence you can place in your results
Which of the following could be considered as categorical variables?	Gender	Brand of baked beans	Hair colour	All of the above	All of the above
One card is drawn at random from a well-shuffled pack of 52 cards. What is the probability that it will be a diamond ?	1/13	1/4	1/52	1/15	1/4
Which of the following is a continous probability distribution?	Normal	Poisson	Binomial	Uniform	Normal
For which distribution, mean,meadian and mode coincides?	Poisson	F	Chi square	Normal	Normal
The range of standard normal variate is …….	−∞ to +∞	0 to 1	0 to ∞	1 to ∞	−∞ to +∞

Question	Option 1	Option 2	Option 3	Option 4	Answer
UNIT-II					
The word ---------- is used to indicate various statistical measures like mean, standard deviation, correlation etc, in the universe.	Statistic	Parameter	Hypothesis	Sample	Parameter
The term STATISTIC refers to the statistical measures relating to the…….	Population	Hypothesis	Sample	Parameter	Sample
Degrees of freedom are related to ……	No. of observations in a set	Hypothesis under test	No. of independent observations in a set	No. of rows of observations	No. of independent observations in a set
Student's t-test is applicable in case of …….	Small samples	For sample of size between 25 and 35	Large samples	For sample size of more than 100	Small samples
The distribution used to test goodness of fit is……..	F distribution	χ^2 distribution	t distribution	Z distribution	χ^2 distribution
The formula for χ^2 is……	$\sum(O - E)^2 / E$	$(E+O)^2 / E$	(O-E) / E	$\sum(O - E)^2 / O$	$\sum(O - E)^2 / E$
In sampling distribution the standard error is a……	Standard mean	Sampling error	Difference error	Type-I error	Sampling error
The characteristic of the chi–square test is ……..	Degree of Freedom	Level of	ANOVA	Independence of	Independence of
If $S_1^2 > S_2^2$, then the F – statistic is…….	S_1 / S_2	S_2 / S_1	S_1^2 / S_2^2	S_1^3 / S_2^3	S_1^2 / S_2^2
Which of the following is the standard deviation of a sampling distribution.	Standard error	Sample standard deviation	Replication error	Meta error	Standard error
A good way to get a small standard error is to use a _____.	Repeated sampling	Small sample	Large sample	Large population	Large sample
Numerical characteristic of a sample is called……..	Statistic	Parameter	Hypothesis	Sample	Statistic
Which of the following symbols represents a population parameter?	S.D	σ	r	0	σ
The distribution of means of all possible samples taken from a population is……	A sampling distribution	A sample	Population distribution	Parameter distribution	A sampling distribution
The mean of the sample means is exactly equal to the …….	Sample mean	Population mean	Weighted mean	Combined mean	Population mean
The mean of Chi - distribution with n degrees of freedom is…….	n	n-1	2n	2n-1	n
The Chi- distribution is…….	Continous	Multimodal	Bimodal	Symmetrical	Continous
In sampling without replacement, expectation of samlpe variance is not equal to:	Population variance	Sample mean	Sample S.D	Population mean	Population variance
For larger degrees of freedom , t- distribution tends to ----------distribution	Standard normal	Binomial	Exponential	Poisson	Standard normal
Mode of F-distribution is always……..	< 1	> 1	1	0	< 1
Sampling distribution of F-distribution only depends on ……	Degrees of freedom	Population size	Sample size	Parameters	Degrees of freedom
Variance of Chi- distribution with n degrees of freedom is given by	n	2n	n-2	n-3	2n
Chi square variate with 1 degree of freedom is the square of ----------variate	Standard normal	Binomial	Normal	Poisson	Standard normal
Student's t-distribution was discovered by…….	Karl Pearson	Laplace	Fisher	Gosset	Gosset
The most commonly used assumption about the distribution of a variable is……...	Continuity	Symmetry	Discontinuity	Non-symmetry	Symmetry
Which distribution is lower at mean and higher at tail than a normal distribution	t	F	Z	Chi-Square	t
F-distribution was devised by----------	R.A.Fischer	Snedecor	Gosset	Karl Pearson	Snedecor
To test whether or not two population variances are equal, the appropriate distribution is……..	Z distribution	Chi-square distribution	F distribution	t-distribution	F distribution
If a statistic t follows student's t distribution,then t^2 follows……..	F distribution	t distribution	Chi-square distribution	Normal distribution	F distribution
If F follows $F(n_1,n_2)$,then $\chi 2$ = follows chi square distribution with ------d.f	n_1	n_2	n_1 -1	n_2- 2	n_1
The relation between the mean and variance of chi square distribution with n d.f is …….	Mean=2 Variance	Mean=Variance	2 Mean= Variance	Mean<Variance	2 Mean= Variance
The range of F- variate is ……	- ∞ to + ∞	0 to 1	0 to ∞	- ∞ to 0	0 to ∞
The larger variance in the variance ratio for F-statistic is taken in……	Denominator	Numerator	As constant	As zero	Numerator
From Snedocor's F-distribution, we can devise…….statistic	Fischer's Z	Students t	Chi square	Normal	Fischer's Z
For Fischer's Z-distribution, Z-statistic is ……..	Z=1/2 log F	Z=2 log F	Z=1/3log F	Z=log F	Z=1/2 log F
Z distribution is formulated from……..distribution.	F	Chi square	t	Standard Normal	F
Which of the following property is not a desirable property of a point estimator?	Consistency	Efficiency	Sufficiency	Bias	Bias
Which of the following is most relevant for deriving a point estimator?	Sample size	Confidence desired	Variability in the population	Population size	Sample size
Which of the following factor does not usually affect the width of a Confidence interval?	Sample size	Confidence desired	Variability in the population	Population size	Population size
Which of the following is not a property of the sample mean?	Unbiased	Efficient	Sufficient	Standardized	Standardized

Given the level of confidence as 95% and margin of error as 2%, the minimum sample size required to estimate the population is	1256	2009	2401	2815	2401
Which of the following statement about confidence limit for population mean is not true?	50% confidence limits are wider	90% confidence limits are wider	95% confidence limits are wider	99% confidence limits are widest	99% confidence limits are widest
Which of the following statement is normally true?	Acceptance region is more than the critical region	Acceptance region is less than the critical region	Acceptance region is equal to the critical region	There is no relationship between acceptance	Acceptance region is more than the critical region
Which one of the following is not a step in conducting a test of significance?	Set up the Null hypothesis	Decide the level of significance	Decide the power of the Test	Decide on the appropriate statistics	Decide the power of the Test
The p-values indicates the :3	Minimum level of significance at which the null	Maximum level of significance at which the null	Maximum level of significance at which the null	Minimum level of significance at which the null	Maximum level of significance at which the null
If the value of proportion p in the population is not known, the most conservative sample size required for the given margin can be calculated by assuming	p = 1/2	p = 1/3	p = 1/4	p = 3/4	p = 1/2
In which distribution the ratio of two variances under the null hypothesis of equal variance is taken?	The t-distribution	The uniform distribution	The Normal distribution	The F-distribution	The F-distribution

Question	Option 1	Option 2	Option 3	Option 4	Answer
UNIT-III					
Level of significance is the probability of…….	Type I error	Type II error	No error	Standard error	Type I error
If the calculated value is less than the table value, then we accept the ---------- hypothesis.	Alternative	Null	Sample	Statistics	Null
Small sample test is also known as …….	Exact test	t – test	normal test	F - test	t – test
An example in a two-sided alternative hypothesis is:	H1: $\mu < 0$	H1: $\mu > 0$	H1: $\mu \geq 0$	H1: $\mu \neq 0$	H1: $\mu \neq 0$
Larger group from which the sample is drawn is called ……..	Statistic	Sampling	Universe	Parameter	Universe
Any hypothesis concerning a population is called a…….	Sample	Population	Statistical measure	Statistical hypothesis	Statistical hypothesis
Rejecting null hypothesis when it is true leads to ……	Type I error	Type II error	Correct decision	Type III error	Type I error
Accepting null hypothesis when it is true leads to	Type I error	Type II error	Correct decision	Type III error	Correct decision
Type II error occurs only if……..	Reject Ho when it	Accept Ho when	Accept Ho when	Reject Ho when it	Accept Ho when
The correct decision is ……	Reject Ho when it	Accept Ho when	Reject Ho when it	Level of	Reject Ho when it
The maximum probability of committing type I error, which we specified in a test is known as	Null hypothesis	Alternative hypothesis	Degrees of freedom	Level of significance	Level of significance
If the computed value is less than the critical value, then …….	Null hypothesis is accepted	Null hypothesis is rejected	Alternative hypothesis is	Level of significance	Null hypothesis is accepted
If the computed value is greater than the critical value, then……..	Null hypothesis is accepted	Null hypothesis is rejected	Alternative hypothesis is	Level of significance	Null hypothesis is rejected
A critical function provides the basis for ……..	Accepting H_0	Rejecting H_0	No decision about	No decision about	No decision about
Degree of freedom for statistic chi-square incase of contingency table of order 2 x 2 is….	4	3	2	1	1
If the sample size is greater than 30, then the sample is called	Large sample	Small sample	Population	Normal	Large sample
If the sample size is less than 30, then the sample is called……..	Large sample	Small sample	Population	Normal	Small sample
Z – test is applicable only when the sample size is …….	Zero	2	Small	Large	Large
The degrees of freedom for two samples in t – test is ……..	$n_1 + n_2 + 1$	$n_1 + n_2 – 2$	$n_1 + n_2 + 2$	$n_1 + n_2 + 1$	$n_1 + n_2 – 2$
The test-statistic t has d.f = _____:	n	n-1	n-2	n-3	n-1
An assumption of t – test is population of the sample is …….	Binomial	Poisson	Normal	Exponential	Normal
The degrees of freedom of chi – square test in contigency tables is …..	(r – 1)(c – 1)	(r + 1)(c + 1)	(r + 1)(c – 1)	(r – 1)(c + 1)	(r – 1)(c – 1)
In chi – square test, if the values of expected frequency are less than 5, then they are combined together with the neighbouring frequencies. This is known as……	Goodness of fit	Degree of Freedom	Level of significance	Pooling	Pooling
In F – test, the variance of population from which samples are drawn are…..	Equal	Unequal	Small	Large	Equal
If the data is given in the form of a series of variables, then the DOF is…….	n	n – 1	n +1	(r – 1)(c – 1)	n – 1
The value of Z test at 5% level of significance is ……..	3.96	2.96	1.96	0.96	1.96
From the following which one of the following is taken as null hypothesis?	$P_1 = P_2$	$P_1 > P_2$	$P_1 < P_2$	$P_1 \neq P_2$	$P_1 = P_2$
Most of the non-parametric methods utilise measurements on……..	Interval scale	Ratio scale	Ordinal scale	Nominal scale	Ordinal scale
For a non-parametric test,the distibution ……	Should be normal	Should be	Need not be normal	Should be Poisson	Need not be normal
Which of the following is a non-parametric test?	Chi square test	F-test	t-test	Z-test	Chi square test
To test goodness of fit for a non-normal distribution, we use……..	Kolomogrov-Smirnov test	Chi square test	F-test	t-test	Kolomogrov-Smirnov test
In tests using rank methods, the null hypothesis is rejected if calculated value is	> tabulated value	< tabulated value	>= tabulated value	<=tabulated value	<tabulated value
The chi sqaure test statistic is defined as…….	Chi square = Sum [{(O - E) * (O -	Chi square = Sum [(O - E)	Chi square = Sum [{(O + E) * (O +	Chi square = Sum [{(O + E) * (O +	Chi square = Sum [{(O - E) * (O -
The chi square variate is always…….	≥ 0	<0	>1	1	≥ 0
Kolomogrov Smirnov test is for testing……..	Equality of several	Comparing two	Equality of 2	Equality of several	Comparing two
The null hypothesis for Kolomogrov Smirnov test is that two populations are from…….	Same population	Normal population	Different populations	Non-normal populations	Same population
Mann-Whitney U-test is used for testing……	Equality of two means	Equality of three means	Equality of several means	Equality of 2 sets of several rankings	Equality of two means
The non-parametric test analogous to ANOVA is……	Kruskal-Wallis test	Mann-Whitney U-	Kolomogrov	Chi square test	Kruskal-Wallis test
Mann-Whitney U-test is analogous to ……..	t-test	Chi-Square test	F-test	Z-test	t-test
Wilcoxon-Wilcox test is used for testing ……	Equality of several	Equality of 2	Equality of two	Equality of several	Equality of several
Wilcoxon-Wilcox test will compare equality of……..	All pairs of means	All means	2 means	More than 3 means	All pairs of means
The independence of attributes can be tested by using……	Contigency tables	Normal table	Pooling	Z-test	Contigency tables
The degrees of freedom in a 3x3 contigency table is…….	8	4	3	0	4

The degrees of freedom in a r x s contigency table is……..	r-1	s-1	r+1	(r-1)(s-1)	(r-1)(s-1)
Most of the Non-Parametric methods utilize measurements on :	Interval Scale	Ratio Scale	Ordinal Scale	Nominal Scale	Ordinal Scale
Kolmogorow - Smirnov have evolved tests for	Goodness of fit of	Comparing two	Both (a) and (b)	Neither (a) nor (b)	Both (a) and (b)
The most commonly used assumption about the distribution of a variable is:	Continuity of the distribution	Symmetry of the distribution	Both (a) and (b)	Neither (a) nor (b)	Symmetry of the distribution
Which one of the following statement is false:	α is called type I	1 - α is called	β is called type II	1 - β is called	1 - α is called
Which one of the following is **not** an alternative hypothesis?	$H_1 : m \neq m_0$	$H_1 : m > m_0$	$H_1 : m < m_0$	$H_1 : m = m_0$	$H_1 : m \neq m_0$

Question	Option 1	Option 2	Option 3	Option 4	Answer
UNIT-IV					
The process of making estimates about the population parameter fror	Statistical	Statistical	Statistical	Statistical	Statistical
Statistical inference has namely two branches,they are……	Level of confidence and	Biased estimator and	Point estimator and unbiased	Estimation of parameter and	Estimation of parameter and
Estimation is possible only in case of a……..	Parameter	Universe	Random sample	Population	Random sample
The numerical value which we determine from the sample for population parameter is called:	Estimation	Estimate	Estimator	Confidence coefficient	Estimate
Estimation is of two types.They are……..	e sided and two si	Type I and Type II	Point eastimation and	Biased and unbiased	Point eastimation and
A formula or rule used for estimating the parameter is called:	Estimation	Estimate	Estimate	Interval estimate	Estimator
A single value used to estimate a population values is called:	Interval estimate	Point estimate	Level of	Degrees of	Point estimate
A value of an estimator is called:	Estimation	Estimate	Variable	Constant	Estimate
Standard error is the standard deviation of the sampling distribution	Estimate	Estimation	Estimator	Error of	Estimator
An estimator is a random variable because it varies from:	opulation to samp	ulation to populat	Sample to sample	mple to populatio	Sample to sample
If T is the estimator of parameter t, then T is called unbiased if……	E(T)>t	E(T)<t	E(T) not equal	E(T)=t	E(T)=t
Estimates given in the form of confidence intervals are called ……	Point estimates	Interval	Confidence	Degree of	Interval
Interval estimate is associated with:……	Probability	Non-probability	Range of values	Number of	Range of values
Range or set of values which have chances to contain value of population parameter with particular confidence level is considered as……	Secondary interval estimation	Confidence interval estimate	Population interval estimate	Sample interval estimate	Confidence interval estimate
Sample means are:	Point estimates of sample means	Interval estimates of	Interval estimates of	Point estimates of population	Point estimates of population
The process of making estimates about the population parameter from a sample is called:	Statistical independence	Statistical inference	Statistical hypothesis	Statistical decision	Statistical inference
Statistical inference has namely two branches,they are……	Level of confidence and	Biased estimator and	Point estimator and unbiased	Estimation of parameter and	Estimation of parameter and
Estimation is possible only in case of a……..	Parameter	Universe	Random sample	Population	Random sample
The numerical value which we determine from the sample for population parameter is called:	Estimation	Estimate	Estimator	Confidence coefficient	Estimate
Estimation is of two types.They are……..	One sided and two sided	Type I and Type II	Point eastimation and	Biased and unbiased	Point eastimation and
A formula or rule used for estimating the parameter is called:	Estimation	Estimate	Estimate	Interval estimate	Estimator
A single value used to estimate a population values is called:	Interval estimate	Point estimate	Level of	Degrees of	Point estimate
A value of an estimator is called:	Estimation	Estimate	Variable	Constant	Estimate
Standard error is the standard deviation of the sampling distribution of an:	Estimate	Estimation	Estimator	Error of estimation	Estimator
An estimator is a random variable because it varies from:	Population to	Population to	Sample to	Sample to	Sample to
If T is the estimator of parameter t, then T is called unbiased if……	E(T)>t	E(T)<t	E(T) not equal to t	E(T)=t	E(T)=t
Estimates given in the form of confidence intervals are called ……	Point estimates	Interval estimates	Confidence limits	Degree of freedom	Interval estimates
Interval estimate is associated with:……	Probability	Non-probability	Range of values	Number of	Range of values
Method in which sample statistic is used to estimate value of parameters of population is classified as	Estimation	Valuation	Probability calculation	Limited theorem	Estimation
Range or set of values which have chances to contain value of population parameter with particular confidence level is considered as……	Secondary interval estimation	Confidence interval estimate	Population interval estimate	Sample interval estimate	Confidence interval estimate
Upper and lower boundaries of interval of confidence are classified as…….	Error biased limits	Marginal limits	Estimate limits	Confidence limits	Confidence limits
Criteria of selecting point estimator must includes information of……	Consistency	Biasedness	Inefficiency	Population	Consistency
Considering sample statistic, if mean of sampling distribution is equal to population mean then sample statistic is classified as……	Unbiased estimator	Biased estimator	Interval estimation	Hypothesis estimator	Unbiased estimator
Which of the following is an estimate of the variability of estimates of the mean in different samples?	Standard error of the mean	Average	Variance	Standard deviation	Standard error of the mean
If point estimate is 8 and margin of error is 5 then confidence interval is	3 to 13	4 to 14	5 to 15	6 to 16	3 to 13
To develop interval estimate of any parameter of population, value which is added or subtracted from point estimate is classified as……	Margin of efficiency	Margin of consistency	Margin of biasedness	Margin of error	Margin of error
In confidence interval estimation, confidence efficient is denoted by……	1 + β	1 - β	1 - α	1 + α	1 - α

In confidence interval estimation, interval estimate is also classified as….	Confidence efficient	Confidence deviation	Confidence mean	Marginal coefficient	Confidence efficient
Value of any sample statistic which is used to estimate parameters of population is classified as……..	Point estimate	Population estimate	Sample estimate	Parameter estimate	Point estimate
Distance between true value of population parameter and estimated value of population parameter is called…….	Error of central limit	Error of confidence	Error of estimation	Error of hypothesis	Error of estimation
In confidence interval estimation, formula of calculating confidence interval is…….	Point estimate * margin of error	Point estimate ± margin of error	Point estimate - margin of error	Point estimate + margin of error	Point estimate ± margin of error
Difference between value of parameter of population and value of unbiased estimator point is classified as…….	Sampling error	Marginal error	Confidence error	Population error	Sampling error
Considering sample statistic, if sample statistic mean is not equal to population parameter then sample statistic is considered as……..	Unbiased estimator	Biased estimator	Interval estimation	Hypothesis estimator	Biased estimator
If true value of population parameter is 10 and estimated value of population parameter is 15 then error of estimation is…	5	25	0.667	150	5
A confidence interval will be widened if:	The confidence level is increased and	The confidence level is increased and	The confidence level is decreased and	The confidence level is decreased and	The confidence level is increased and
A 95% confidence interval for the mean of a population is such that:	It contains 95% of the values in the population	There is a 95% chance that it contains all the	There is a 95% chance that it contains the	There is a 95% chance that it contains the	There is a 95% chance that it contains the
If a standard error of a statistic is less than that of another then what is the former is said to be……..	efficient	unbiased	consistent	sufficient	efficient
_____ are the values that mark the boundaries of the confidence interval.	Confidence intervals	Confidence limits	Levels of confidence	Margin of error	Confidence limits
When S is used to estimate σ, the margin of error is computed by using…….	normal distribution	t distribution	sample mean	population mean	t distribution
For the interval estimation of μ when σ is known and the sample is large, the proper distribution to use is…….	t distribution with n +1	t distribution with n-1	t distribution with n degrees	normal distribution	normal distribution

Question	Option 1	Option 2	Option 3	Option 4	Answer
UNIT-V					
The square of the S.D is …….	Variance	Coefficient of	Square of variance	Square of	Variance
Analysis of variance is a statistical method of comparing the _____ of several populations.	Standard deviations	Means	Variances	Proportions	Means
The analysis of variance is a statistical test that is used to compare how many group means?	Three	More than three	Three or more	Two or more	Two or more
Analysis of variance utilizes:	F-test	Chi-Square test	Z-test	t-test	F-test
What is two-way ANOVA?	An ANOVA with two variables and	An ANOVA with one variable and	An ANOVA with one variable and	An ANOVA with both categorical	An ANOVA with one variable and
Which of the following is the correct F ratio in the one-way ANOVA?	MSA/MSE	MSBL/MSE	MST/MSE	MSE/MST	MST/MSE
For validity of F-test in Anova, parent population should be…….	Binomial	Poisson	Normal	Exponential	Normal
_____ sum of squares measures the variability of the observed values around their respective tabulated values	Treatment	Error	Interaction	Total	Error
The _____ sum of squares measures the variability of the sample treatment means around the overall mean.	Total	Treatment	Error	Interaction	Treatment
If the true means of the *k* populations are equal, then MST/MSE should be:	more than 1.00	Close to 1.00	Close to -1.00	A negative value between 0 and - 1	Close to 1.00
If MSE of ANOVA for six treatment groups is known, you can compute……	Degree of freedom	The standard deviation of each	Variance	The pooled standard deviation	The pooled standard deviation
To determine whether the test statistic of ANOVA is statistically significant,to determine critical value we need	Sample size, number of groups	Mean, sample standard deviation	Expected frequency,	MSTR, MSE	Sample size, number of groups
Which of the following is an assumption of one-way ANOVA comparing samples from 3 or more experimental treatments?	Variables follow F- distribution	Variables follow normal	Samples are dependent each	Variables have different variances	Variables follow normal
The error deviations within the SSE statistic measure distances:	Within groups	Between groups	Between each value and the	Betweeen samples	Within groups
In one-way ANOVA, which of the following is used within the *F* -ratio as a measurement of the variance of individual observations?	SSTR	MSTR	SSE	MSE	SSE
When conducting a one-way ANOVA, the _____ the between-treatment variability is when compared to the within-treatment variability	More random larger	Smalller	Larger	More random smaller	Smaller
When conducting a one-way ANOVA,the value of *F* DATA will be tend to be ……..	More random larger	Smalller	More random smaller	Larger	Smaller
When conducting an ANOVA, *F* DATA will always fall within what range?	Between negative infinity and	Between 0 and 1	Between 0 and infinity	Between 1 and infinity	Between 0 and infinity
If F DATA = 5, the result is statistically significant	Always	Sometimes	Never	Is impossible	Sometimes
If F DATA= 0.9, the result is statistically significant	Always	Sometimes	Never	Is impossible	Never
When comparing three treatments in a one-way ANOVA ,the alternate hypothesis is…..	All three treatments have different effect on the mean	Exactly two of the three treatments have the same effect on the	At least two treatments are different from each other in	All the treatments have same effect	At least two treatments are different from each other in
If the sample means for each of *k* treatment groups were identical,the observed value of the ANOVA test statistic?	1	0	A value between 0.0 and 1.0	A negative value	0
If the null hypothesis is rejected, the probability of obtaining a *F* -ratio > the value in the *F* table as the 95th % is:	0.5	>0.5	<0.5	1	<0.5
ANOVA was used to test the outcomes of three drug treatments. Each drug was given to 20 individuals. If MSE =16, What is the standard deviation for all 60 individuals sampled for this study?	6.928	48	16	4	4
Analysis of variance technique originated in the field of……	Agriculture	Industry	Biology	Genetics	Agriculture
With 90, 35, 25 as TSS, SSR and SSC , in case of two way classification, SSE is…..	50	40	30	20	30
Variation between classes or variation due to different basis of classification is commonly known as ……...	Treatments	Total sum of squares	Sum of squares	Sum of squares due to error	Treatments
The total variation in observations in Anova is classified as:	Treatments and inherent variation	SSE and SST	MSE and MST	TSS and SSE	Treatments and inherent variation
In Anova, variance ratio is given by…….	MST/MSE	MSE/MST	SSE/SST	TSS/SSE	MST/MSE
Degree of freedom for TSS is……..	N-1	k-1	h-1	(k-1)(h-1)	N-1
For Anova, MST stands for……...	Mean sum of squares of	Mean sum of squares of	Mean sum of squares of tables	Mean sum of sources of	Mean sum of squares of

An ANOVA procedure is applied to data of 4 samples,where each sample contains 10 observations.Then degree of freedom for critical value of F are	4 numerator and 9 denominator	3 numerator and 40 denominator	3 numerator and 36 denominator	4 numerator and 10 denominator	3 numerator and 36 denominator
The power function of a test is denoted by…….	M(w,Q)	M(Q,Qo)	P(w,Q)	P(w,Qo)	M(w,Q)
Sum of power function and operation characteristic is…….	Unity	Zero	two	Negative	Unity
Operation characteristic is denoted by……	L(w,Q)	M(w,Q)	L(w,Qo)	M(w,Qo)	L(w,Q)
Operation characteristic is also known as ……	Test characteristic	Power function	best characteristic	unique	Test characteristic
The formula to find OC is L(w,Q)=	1-Power Function	2xPower Function	Power Funtion -1	2xConfidance	1-Power Function
Operation Characteristic is of a test is related to…	Power Function	Best Test	Unique Test	Uniformally Best	Power Function
If the Hypothesis is correct the operation charectristics will be……	1	0	-1	0.5	1
If the Hypothesis is wrong the operation charectristics will be…….	0	1	0.5	0.333333	0
In which test we verify a null hypothesis against any other definite alternate hypothesis?	Best Test	Unique Test	Uniformally Best Test	Unbiased Test	Best Test
A Best Test is a Test such that the critical region for which _____ attains least value for a given α.	Beta	1-Beta	Alpha	1-Alpha	1-Beta
A Test whose power funtion attains its mean at point Q = Qo is called ____ Test	Unique	Unbiased	Power	Operation Characteristic	Unique
A Best Unique Test exist _____	Always	Never	Sometimes	When Q not = to	Sometimes
Operation Characteristic is related to	Power Function	Unique Test	Best Test	Uniformally Best	Power Function
Power is the ability to detect:	A statistically significant effect	A psychologically important effect	Both (a) and (b) above	Design flaws	A statistically significant effect
Calculating how much of the total variance is due to error and the experimental manipulation is called:	Calculating the variance	Partitioning the variance	Producing the variance	Summarizing the variance	Partitioning the variance
ANOVA is useful for:	Teasing out the individual effects of factors on an Independent	Analyzing data from research with more than one Independent	Analyzing correlational data	Individual effects of factors on an Dependent Variables	Analyzing data from research with more than one Independent
What is the definition of a simple effect?	The effect of one variable on another	The difference between two conditions of one Independent	The easiest way to get a significant result	Difference between two Dependent Variables	The difference between two conditions of one Independent
In a study with gender as the manipulated variable, the Independent Variable is:	Within participants	Correlational	Between participants	Regressional	Between participants
Which of the following statements are true of experiments?	The Independent Variable is manipulated by	The Dependent Variable is assumed to be	They are difficult to conduct	both (a) and (b)	both (a) and (b)
All other things being equal, repeated-measures designs:	Have exactly the same power as independent	Are often less powerful than independent	Are often more powerful than independent	Are rarely less powerful when compare to than	Are often more powerful than independent
Professor P. Nutt is examining the differences between the scores of three groups of participants. If the groups show homogeneity of variance, this means that the variances for the groups:	Are similar	Are dissimilar	Are exactly the same	Are enormously different	Are similar
Differences between groups, which result from our experimental manipulation, are called:	Individual differences	Treatment effects	Experiment error	Within-participants effects	Treatment effects
Herr Hazelnuss is thinking about whether he should use a related or unrelated design for one of his studies. As usual, there are advantages and disadvantages to both. He has four conditions. If, in a related design, he uses 10 participants, how many would he need for an unrelated design?	40	20	10	100	40
Individual differences within each group of participants are called:	Treatment effects	Between-	Within-	Individual biases	Within-
Calculating how much of the total variance is due to error and the experimental manipulation is called:	Calculating the variance	Partitioning the variance	Producing the variance	Summarizing the variance	Partitioning the variance
The decision on how many factors to keep is decided on:	Statistical criteria	Theoretical criteria	Both (a) and (b)	Neither (a) nor (b)	Both (a) and (b)
It is possible to extract:	As many factors as variables	More factors than variables	More variables than factors	Correlation between the	As many factors as variables
Four groups have the following means on the covariate: 35, 42, 28, 65. What is the grand mean?	43.5	42.5	56.7	58.9	42.5
You can perform ANCOVA on:	Two groups	Three groups	Four groups	All of the above	All of the above
When carrying out a pretest--posttest study, researchers often wish to:	Partial out the effect of the	Partial out the effect of the	Reduce the correlation	Correlation between the two	Partial out the effect of the

Using difference scores in a pretest--posttest design does not partial out the effect of the pretest for the following reason:	The pretest scores are not normally correlated with	The pretest scores are normally correlated with	The posttest scores are normally	Up normal relationship with the different scores	The pretest scores are normally correlated with
Experimental designs are characterized by:	Two conditions	No control condition	Random allocation of	More than two conditions	Random allocation of
Between-participants designs can be:	Either quasi-experimental or	Only experimental	Only quasi-experimental	Only correlational	Either quasi-experimental or
A continuous variable can be described as:	Able to take only certain discrete values within a	Able to take any value within a range of scores	Being made up of categories	Being made up of variables	Able to take any value within a range of scores
In a within-participants design with two conditions, if you do not use counterbalancing of the conditions then your study is likely to suffer from:	Order effects	Effects of time of day	Lack of participants	Effects of participants	Order effects
Demand effects are possible confounding variables where:	Participants behave in the way they think the	Participants perform poorly because they are	Participants perform well because they have	Participants perform strongly	Participants behave in the way they think the
Power can be calculated by a knowledge of:	The statistical test, the type of design and the	The statistical test, the criterion significance level	The criterion significance level, the effect size and	The criterion significance level, the effect size and	The criterion significance level, the effect size and
Relative to large effect sizes, small effect sizes are:	Easier to detect	Harder to detect	As easy to detect	As difficult to	As difficult to
Differences between groups, which result from our experimental manipulation, are called:	Individual differences	Treatment effects	Experiment error	Within-participants effects	Treatment effects