STA301 FINAL TERM PREPARATION 2023

(OBJECTIVE PART) BY MASTERS

LECTURE 19 TO 45

1. The total number of samples when sampling is done with replacement:

N^n

2. ANOVA was introduced by:

R.A Fisher

3. The test statistic used in analysis of variance procedure follow the ..... distribution.

F

4. For testing of hypothesis about population proportion, we use:

Z-test

5. Sample proportion is an/are ___ estimator of population mean.

Unbiased

6. A statistic whose standard error decreases with an increase in the sample size will be:

Consistent

7. We can apply method of Maximum Likelihood on:

Discrete as well as continuous variables

8. β is the probability of:

Accept H0/H0 is false

9. Accept H0/H0 is false, is the _____.

Type II error

10. Conventionally, the probability of making a type-II error is denoted by:

Beta

11. _____ are equivalent:

Type-I error and level of significance.

12.In general, the estimators obtained by the method of moments are _____.

Inefficient

13. The larger the n, the smaller the standard error, and so the narrower the:

Confidence interval

14. If we have the following information: p=0.16, q=0.84, z=1.96 and e=0.05, then sample size will be:

207 n = z2.p.q/ e2

15. “A point estimate plus/minus a few times the standard error of that estimate”. This statement represents:

Confidence interval

16. The maximum likelihood estimators (MLE) are ____ and ____ but not necessarily____.

Consistent, efficient, unbiased

17. Inferential statistics involves

All of above

18. Method of moments for estimation of parameters is based on the theory of

Non- linear estimation

19. If Var (mean1) < Var (mean2) it implies

Mean 1 is more efficient

20. An estimator is said to be efficient if it has

Smallest variance

21 In binomial distribution the sample size is considered to the sufficiently large, if both np and nq are
greater than or equal to:

5

22. Which of the following relationship exist between sampling distribution of samples mean and
sampling distribution samples median?
Var(mean)<var(median)

23. Alpha is probability of _____
Making type I error

24. How can we interpret the 90% confidence interval for the mean of the normal population?
There are 90% chances of falling true the value of the parameters

25.For a particular data the value of Pearson's coefficient of skewness is greater then zero. What will be the shape
of distribution?
Positively skewed

26. In measures of relative dispersion unit of measurement is:
Vanish

27.The F-distribution always ranges from:
0 to +∞

28. In chi-square test of independence the degrees of freedom are:

n - p

29.The Chi- Square distribution is continuous distribution ranging from:

$0 \leq \chi 2 \leq \infty$

29.If X and Y are random variables, then *E (X-Y)* is equal to:

E X – EY

30.If ŷ is the predicted value for a given x-value and b is the y-intercept then the equation of a regression line for
an independent variable x and a dependent variable y is:

ŷ = mx + b, where m = slope

31.The location of the critical region depends upon:

Alternative hypothesis

32. Simple random sampling is appropriate when the units in population are:

Homogenous

33. The larger the standard error the _____ the confidence interval.

Narrower

34. If Var(T1)>Vr(T2) where T1 and T2 are two unbiased estimators, then

T2 is more efficient

35. A quantity obtained by applying certain rule or formula is known as

Estimation

36. In testing HO u = 100 against HI u=100 at the 10% level of significance HO is rejected if

The value of the test is static in the acceptance region

37. A static whose standard error decreases with an increase in the sample size will be____.

Consistent

38. To determine a sample size which test we use _____.

Z

39. When sample size is to be considered large, population standard deviation can be

replaced by:

- Sample standard deviation

40. The confidence intervals become wide and less precise by:

- Decreasing sample

41.. In a Poisson distribution, Maximum Likelihood Estimator (MLE) for meu (μ) is equal to:

- Sample mean

42.In a Geometric distribution, Maximum Likelihood Estimator (MLE) for proportion (p) is equal to:

- Reciprocal of the mean

43. In a random sample of 500 men from Lahore city, 300 are found to be the smokers, the proportion
of smokers is equal to:

- 0.6

44. Which of the following is not criterion for a good problem situation?

- It must be clearly structured and defined

45. The method of Maximum Likelihood (ML) is

used to find out:

- Point estimates

46. If we draw a sample of size ‘n’ from a population the sample is called ‘large sample’ if:

- n>30

47. Sample mean is a/an _____ estimate of population mean.

- Unbiased

48. The width of the confidence interval is called ____ of the estimate.

- Precision

49. The precision of an estimator can be increased by increasing the:

- Size of sample

50. “A failed student is passed by an examiner”, is an example of:

- Type II error

51. An experiment was conducted to estimate the mean yield of a new variety of wheat. A sample of 20
plots gave a mean yield of 2.9, and a 95%

confidence interval of (2.48, 3.32). This means:

- We are 95% confident that the true mean yield of this variety is between 2.48 and 3.32

52. An alternative hypothesis is generally denoted by:

- H1

53. Ideally, the width of confidence interval should be:

- 0

54. A _____ is a range of numbers inferred from the sample that has a certain probability of including
the population parameter over the long run.

- Confidence interval

55. Conventionally, the probability of making a type-I error is denoted by which of the following symbol?

- Alpha

56. In interval estimation we obtained a ____ of values as an estimate of parameter.

- Range

57. As sample size goes up, what tends to

happen to 95% confidence interval?

- They become more precise and narrow

58.Which of the falling is true for the binomial distribution b(x: n, p):

Mean > Variance

59.What is *m f* in the formula of mode?

highest frequency

60. The parameters of the binomial distribution b(x; n, p) are:

n & p

61.Which of the following is true for the Poisson distribution:

mean = variance (Page 223)

62.If a significance level of 1% is used rather than 5%, the null hypothesis is:

Less likely to be rejected

63.The variance of the chi-square distribution is:

2*v* (Page 307)

64.The degrees of freedom for a t-test with

sample size 10 is:

9

65. The value of χ2 can never be :

Negative (Page 307)

66. From point estimation, we always get:

• Single value

67. The mean of the F-distribution is:

$$f(x)=\frac{\Gamma[(\nu_1+\nu_2)/2]\,(\nu_1/\nu_2)^{\nu_1/2}\;x^{(\nu_1/2)-1}}{\Gamma(\nu_1/2)\,\Gamma(\nu_2/2)\,[1+\nu_1 x/\nu_2]^{(\nu_1+\nu_2)/2}},\quad 0<x<\infty$$

0 to +∞

68.ANOVA was introduced by :

R.A Fisher (Page 320)

69.The test statistic used in analysis of variance procedure follow the ..... distribution.:

F (Page 326)

70.For testing of hypothesis about population proportion , we use:

Z-test (Page 292)

71. The probability of drawing a king of spade from a pack of 52 cards is:

1/52

72.An estimator T is said to be unbiased

estimator of θ if

E (T) =θ (Page 258)

73From point estimation, we always get:

Single value (Page 257)

74.The best unbiased estimator for population variance σ^2 is:

Sample variance (Page 260)

75.When c is a constant, then E(c) is:

c

75. β is the probability of

Accept HO/HO is false

76.An estimator is said _____ to be is expected value is equal to true value of its parameter.

Unbiased

77. For a symmetrical data set mean value is 150 and standard deviation 25.99.73% (approximately all) values will lie between

(100,200)

78. In testing HO u = 100 against HI u=100 at the 10% level of significance HO is rejected if

The value of the test is static in the acceptance region

79. The sampling distribution of the mean becomes approximately normally distributed only when the following conditions is met?

Sample size is large

80. To determine a sample size in estimating population mean, we use the _____ value.

T

81. A_____ is a range of numbers inferred from the sample that has a certain probability of including the population parameter over the long run.

Probability limit

82. The binomial distribution is negatively skewed when:

p>q (Page 215)

83.When we draw the sample with replacement, the probability distribution to be used is:

Binomial

84.The moment ratios of normal distribution come out to be:

0 and 3 (Page 227)

85.Suppose the test scores of 600 students are normally distributed with a mean of 76 and standard deviation of 8. The number of students scoring between 70 and 82 is:

328

86.If P (A) = 0.3 and P (B) = 0.5, find P (A/B) where ‘A’ and ‘B’ are independent:

0.15 (Page 162)

87.If the second moment ratio is less than 3 the distribution will be:

Platykurtic

88.For the independent events A and B if P (A) = 0.25, P (B) =0.40 then P (A and B) =……

0.1 (Page 162)

89.A random variable X has a probability distribution as follows: X | 0 1 2 3 P(X) | 2k 3k 13k 2k What is the possible value of k:

0.05

90.The probability of drawing any one spade card is:

13/52

91. Which of the following is a characteristic of

a binomial probability experiment?
The result of one trial does not affect the probability of success on any other trial (Page 211)
92.The number of parameters in uniform distribution is (are):
2
93.The probability can never be:
1/2
94.The conditional probability P (A\B) is:
P(A n B)/P(B) (Page 159)
95.A random sample of n=25 values gives sample mean 83. Can this sample be regarded as drawn from a normal
population with μ= 80 and s= 7? In this question the alternative hypothesis will be:
H1: μ ≠80
96. The hyper geometric random variable is a(an):
Discrete variable Click here for detail
97.From a sample of 200 people were asked whether they like a particular product. Fifty said 'yes' and remain said

'no', assuming ‘yes’ means a success, which of the following is correct?

Sample proportion p=0.25 (Page 245)

98. Which of the following is most important and most widely used method in point estimation?

The method of leas square (Page 263)

99. Which of the probability distributions has three parameters?

Hypergeometric distribution (Page 219)

100.A standard deviation obtained from sampling distribution of sample statistics is known as

Standard error (Page 240)

101.A parameter is a ..... Quantity.

Variable

102. Binomial distribution is skewed to the right if:

P<q (Page 215)

104.The Probabilities of the various values of the sample statistic can be computed using the.....

Classical (Page 149)

105.If p is very small and n is considerably large then we shall apply the:

Poisson distribution

106A sales firm receives different calls from clients. If someone says, today it will receive “at most 3 calls”. How many calls will be received?

3,4.5.

107..In a binomial distribution formula of calculating standard deviation is

$\sqrt{npq}$

108.The uni-variate distribution obtained from a bi—variate distribution is known as:

Marginal Distribtion

109. If the first moment ratio is less than 0, then the distribution will be;

Symmetrical

110. From joint distribution function f(X, Y), we can get marginal probabilities function, but vise versa is true when

X and Y are independent

111. The marginal p.d.f. of variables is obtained by integrating the other variable from the joint p.d.f.

Continuous

112. If E(x)=2 and E(y)=5 then E(xy) is equal to"

10

113. The standard normal distribution has it mean and variance equal to:

0 and 1 respectively

114. The variance of the Hypergeometric distribution is:

{nk(N-k) (N-n)}/N*N(N-1)

115. Using the normal approximation to the binomial distribution with n= 3 and p= 0.057] the value of mean is:

01713

116. What are the numbers of parameter of Hyper geometric distribution ?

3

117. The mean of Uniform distribution defined on the interval [a,b] is:

$\frac{a+b}{2}$

118. What should be the type of both variables in joint probability distribution of X and ¥?

Either both continuous ar both discrete

119. Integrating the product of x and f{x) from range
—o to +00 give us the
Total probability of x
120. If total probability of joint probability distribution f(xy) is ONE then what will be the total probability of its marginal pdf hiy)?
One
121. The hypergeometric probability distribution has parameters:
N,n,k
122. Which of the following is major property of hypergeometric distribution other than binomial distribution.
select the correct option
The outcome of each trial may be classified into one of two categories
123. The shape of the Poisson distribution is
The shape of the Poisson distribution is skewed and unimodal
124. In case of bivariate distribution, co-variance of distribution is represented.
E(XY) =E(X).E(Y)
125. According to emperical rule, how much data lies between? $\mu - \sigma and \mu + \sigma ?$

68.26%

126. Which of the following is a characteristic of a binomial probability experiment?

The result of one trial does not affect the probability of success on any other trial

127. The number of typing errors per page in a book follows:

Poisson Process

128. P[(x+Y) < 2] =? , where x=0,1, 2 and y=0, 1, 2

f(0,0) +f (0,1) + f(1,0)

129. Which of the following is not a requirement of a binomial distribution?

Equally likely outcomes.

130. The number of parameters in uniform distribution is (are):

2

131. If b= 0, then E{ay+b) =

y E(a)

132 If the first moment ratio is equal to 0, then the distribution will be:

Symmetrical

133. When the event occur randomly aver a specified interval of time, space or length; the

distribution is known as:
Poisson Process.
134. If pis very small and n is considerably large then we shall apply the:
Poisson distribution
135. What will be the value of CV if SD = 0.5 and mean =1.
50%
136. A uniform distribution has the following shape:
Bi model
137. Nature of the binomial random variable X is:
Continues
138. The values of moment ratios b1 and b2 of normal distribution are:
0 and3
139. Assume a large distribution in which 6 = 6. What is the standard error
of the the mean based for which n = 10?
1.9
140. if X and Y are independent, then Cov (X, y) is equal to:
0

141. A fair coin is tossed three times, the probability that at least one head appears,
7/8 (HHH,HHT,HTH, HTT, THH THT TTH TTT)
142. In a multiplication theorem P (A and B) equals:
P(A) * P (B|A)
143. The probability of an event is always:
between o and 1

144. If we roll three fair dices then the total number of outcomes is:
216 6*6*6=216
145. Which of the following can never be probability of an event?
-0.5
146. The standard deviation of -1, -1, -1, -1 will be
0
147. The Special Rule of Addition is used to combine:
Mutually Exclusive Events
148.set which is the sub-set of every set is
Universal Set
149..When two dice are rolled the number of

possible sample points is :
36
150.If two events A and B are not mutually exclusive then
P (A or B) = P (A) + P (B) – P (A and B)

Best of luck❤️