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ABE 463

WTE Compiled Questions

WTE COMPILED QUESTIONS

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1. If a fair die is rolled 4 times, then what is the probability that there are exactly 2 sixes?

2. If the probability of producing a defective screw is p=0.01. What is the probability that a lot of 100screws will have a greater that 2 defective screw, using either Poisson or Binomial distribution?

3. 10% of tools are defective. Find the probability that in a sample of 10 tools chosen at random 2 will be defective.

4. If a fair die is rolled 4 times, then what is the probability that there are exactly 2 sixes?

5. What is T-test used for? The t-test is used when the sample size is?

6. Full meaning of ANOVA.

7. In a class of 7boys and 3girls. What is the probability of selecting exactly 2 girls?

8. The total yearly meat production for cows in a herd is assumed to be Normally distributed with μ = 220 kg and d = 40kg.
   What is the probability that the meat production for a cow chosen a will be between 180 and 270kg?

9. What is the coefficient of skewness? What's a_3?

10. An important measure of skewness using the third moment about the mean expressed in dimensionless form.

11. If a mean weight of a distribution is 180lb and its standard deviation is 15lb. Find the probability distribution if the maximum and minimum weight are 180lb and 160lb respectively.

12. In a sample of a large group of people, the mean of their weights is 180kg and variance is 15 what is the probability that when two people are chosen at random, their weights are 160kg and 180kg?

13. Meaning of null hypothesis.

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14. Definition of correlation. Is correlation quantitative or qualitative?

15. Questions of rejecting null hypothesis when tcal and ttab are given.

    rho= 0 tcal= 5.something, ttab = 1. Something
    Option A: reject the null hypothesis
    Option B: Reject both the null hypothesis and alternate hypothesis...

    Reject the null hypothesis

16. Find M1 and M4 about the mean. Question is from the group data question inside the material (on moment).

17. What's the strongest R
    R = 0.65
    R = 0.60
    R = 0.10

18. Definition of F-test.

19. Correlation has the strongest linear … something like this

20. Formula for dimensionless coefficient.

21. Definition of Skewness and Kurtosis.

22. Formula for dimensionless moment of skewness & kurtosis.

23. Formula for rth moment.

24. Then a particular question, can't really remember the question but it's options are like
A: population is greater than 30
B: population is less than 30
C: population is equal to 30

25. Formula of chi square.

26. Over weight men is greater than over women is what type of hypothesis
    a) Null hypothesis
    b) Alternative hypothesis
    c) Both null and alternative

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27. A police department receives an average of 5 calls/hour. What is the probability of receiving 2calls/hour in an averagely selected hour?

28. The price of a textbook in college is the same price all over the internet is a
    a) Null hypothesis
    b) Alternative hypothesis
    c) Neither Null or alternative
    d) Both Null and alternative

29. Which one is the weakest r
    r = 0.60
    r = 0.65
    r = 0.11
    r = 0.00
    When r=0.0 (has the least strength)

30. Z score is used when data is
    A. Greater than 30
    B. Less than 30
    C. Greater than 50
    D. Less than 50

31. For what value do we use t- table (t-distribution)
    A. Greater than 30
    B. Less than 30
    C. Greater than 50
    D. Less than 50

    For what value is the t-table application
    Options: **less than 30**, greater than 30, less than 50, greater than 50

32. If an average of 2 cars enter a parking lot per minute. Find the probability that during any given minute, 4 or more cars will enter the parking lot.

33. Assuming 6 cars pass thru a toll gate per minute during rush hour, what is the probability that at most 3 cars pass through the toll gate at any given minute?

34. There was one question with mean of 8300kg standard deviation of 100kg. Calculate z smtn using a given formula.

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35. Using a Hypergeometric distribution, determine the probability of drawing 3 clubs in 5cards without replacement from 5200 cards (1300 club and 3900 non club).

    N = 5200, M = 1300, n = 5, x = 3, P(x=3)

36. Average of 2 cars enter every minute. Find the problem of 4 or more cars enter in a minute.

37. Find the probability that a student weighs 270kg if the average weight is 220kg and the standard deviation is 40

38. Find m2 & m4 given

    m1' = 0.48
    m2' = 8.73
    m3' = 8.91
    m4' = 204.93

39. If 20% of the bolts produced by a machine are defective, determine the probability that, out of 4 bolts chosen at random, (a) 1, (b) 0, and (c) at most 2 bolts will be defective. If 20% of the bolts produced by a machine are defective, determine the probability that, out of 4 bolts chosen at random, (a) 1, (b) 0, and (c) at most 2 bolts will be defective.

    a) 0.4096 b) 0.4096 c) 0.9728

40. The probability that an entering student will graduate is 0.4. Determine the probability that out of 5 students, (a) none will graduate, (b) 1 will graduate, (c) at least 1 will graduate, (d) all will graduate
    a)0.07776 or about 0.08 b) 0.2592 or about 0.26 c) 0.92224 or 0.92 d) 0.01024 or about 0.01

41. Which of the following uses mean =np and S.D = sqrt (npq)
    (Ans is Probability distribution)

42. The probability of getting exactly 2 heads in 6 tosses of a fair coin
    (Ans =0.4167)

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43. What is the probability of getting at least four heads in 6 tosses of a fair coin? (Ans= 0.34375)

44. Ten percent of the tools produced in a certain manufacturing process turn out to be defective. Find the probability that in a sample of 10 tools chosen at random exactly 2 will be defective by using (a) the binomial distribution and (b) the Poisson approximation to the binomial distribution

    a)0.1937 or 0.19 b) 0.1839 or 0.18

45. Observed 15 35 49 58 65 76 72 60 35 29 6
    Expected 13.9 27.8 41.7 55.6 69.5 83.4 69.5 55.6 41.7 27.8 13.9

    $\chi 2 = \sum (Oj - ej) 2\ j\ ej\ /$ = 10.34

    P value corresponding to 10.34 is 0.411 because of the large value of P, **the throwing is fair.**

46. If 3% of the electric bulbs manufactured by a company are defective, find the probability that in a sample of 100 bulbs (a) 0, (b) 1, (c) 2, (d) 3, (e) 4, and (f) 5 bulbs will be defective

    Answers
    (a) 0.04979; (b) 0.1494; (c) 0.2241; (d) 0.2241; (e) 0.1680; (f) 0.1008.

47. Let X be a Poisson distribution with a mean of 0.72, calculate the value of P (x=2)

48. If n=12, r=0.6241; check the hypothesis to reject or accept

49. Find t_{cal} if n=20 and r= -0.971

50. When r=0 (Is it perfect +ve, perfect –ve e.t.c)

51. What is the probability of obtaining 6 when a fair dice is rolled 6 times?

52. The mean speed of a car is 65kmph, if the S.D =4 find the probability of the speed less than 60kmph

53. Determine using Poisson to approximate distribution (Binomial) n=100, p=0.01

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54. Find the strongest r in the following (options; **0.85**, 0.60, 0.65 etc)

55. Condition for moderately correlated.

56. Find the probability of tossing 4 head in 6 tosses of a coin.

57. Which of the following can be described as a one-way classification or one factor experiment?

58. Each sample of water has a 10% chance of containing a particular organic pollutant. Assume that the samples are independent with regard to the presence of the pollutant. Find the probability that in the next 8 samples, exactly 2 will contain pollutant.

59. The test for hypothesis for two variables is such that rho=0, t_{cal}=6.0387, and t_{tab}=1.7709. Find whether it's a null hypothesis or an alternate hypothesis or both.

60. What is the Variation between treatment?

61. The Hypergeometric distribution has the following data:
N = 10, M = 3, n = 2, x = 2

62. Which of this don't define Engineering statistics
a) Design of engine parts …

63. Using a Hypergeometric distribution, find the probability of picking 2 men in a sample of 6 selected at random without replacement from 10 people in which 5 are men.

There's a question groups: something like in 6, 2 are men and 4 are women... In 10, 5 are men and 5 are women.
The correct option is **0.238** if we use combination in calculator.

N = 10, M = 5 n = 6 x = 2 P(x=2)

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64. The Chi-square is used in all of the following except
These are the applications of chi square except...

65. If a dice is rolled 500 times. Fill in the blank space.

x	2	3	4	5	6	7	8	9	10	11	12
P(x)	1/36	2/36	3/36	4/36	5/36	?	5/36	4/36	3/36	2/36	1/36

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