

*m trials in an experiment
constant P given*

*$\lambda = n \cdot P$
 $\lambda = 1 \cdot p$*

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Instruction: Tick the correct option in the spaces provided below. Write with ink ONLY.
Time allowed: 1hr

Apparent limit	81-90	71-80	61-70	51-60	41-50	31-40	21-30	11-20
Frequency	5	3	12	16	33	21	15	7

Use the above table to answer questions 1-5

- The mean of the distribution is
a. 45.23 b. 54.23 c. 46.23 d. 44.23
- The median of the distribution is
a. 44.43 b. 44.45 c. 44.55 d. 44.65
- The mode is
a. 45.2 b. 45.5 c. 45.1 d. 45.3
- The class interval is.
a. 7 b. 8 c. 9 d. 10.
- The cumulative frequency is
a. 112 b. 114 c. 113 d. 104
- If a distribution has one mode it is said to be
a. multimodal b. unimodal c. compound modal d. simple modal
- The symbol for population mean is
a. \bar{x} b. N c. 6 d. 5
- Mean median and mode are measures of
a. dispersion b. central tendency c. significance d. expression
- The middle score of a ranked distribution of raw scores is
a. mode b. standard error c. median d. mean
- The most frequency score in a distribution is
a. mode b. frequency c. median d. mean

Use this formula to answer question 11-13

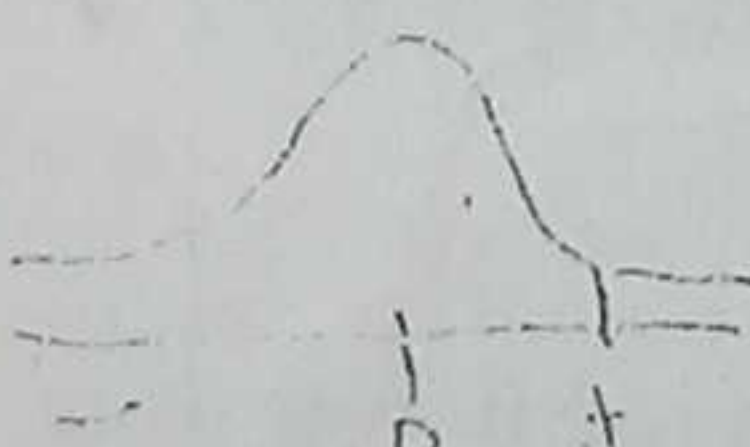
$$L + \left[\frac{\frac{n}{2} - CF_b}{f_i} \right] \cdot i$$

- The above formula is used to calculate
a. the mean b. the median of a grouped frequency distribution c. the mode of a grouped distribution d. the median
 - The class interval is represented by
a. Cfb b. I c. L d. Fi
 - The sample size is a. $n/2$ b. p c. L d. I
 - In a normal distribution, the mean, median and mode are
a. all the same b. negative c. not the same d. odd
 - The bell curve extends from + infinity to.
a. -infinity b. +infinity c. +-infinity d. o infinity
 - A standard normal variate is that variate which has a mean of 0 and a variance of. a. 2 b. 0 c. 1 d. 10.
 - A standard normal distribution table is used to obtain probabilities for a. 0 b. 1
a. frequency distribution b. normal distribution c. student t-test d. chi-square distribution.
 - The normal distribution can be completely specified by two parameters: mean and
a. error b. variance c. standard deviation d. median
- Find the probabilities of the following where Z is normal : (0,1)
- What is $p(z > 2.5)$? a. 0.0062 b. 0.7200 c. 0.0262 d. 0.0052
 - What is $p(0 \leq Z \leq 2.5)$? a. 0.5938 b. 0.4938 c. 0.4328 d. 0.4928
 - What is $p(2.5 \leq Z \leq 2.5)$? a. 0.9276 b. 0.9866 c. 0.9876 d. 0.9376
 - Given the $X:N(2,9)$ what is $P(x \leq 8)$? a. 0.9772 b. 1.9882 c. 0.9782 d. 0.9772

x	f	fx	cf
85.5	5	427.5	112
75.5	3	226.5	107
65.5	12	786	95
55.5	16	888	79
45.5	33	1501.5	63
35.5	21	745.5	47
25.5	15	382.5	32
15.5	7	108.5	15
		5666	112

$$L_{cl} + \left(\frac{\frac{n}{2} - Cfb}{f_i} \right) \cdot i$$

$$40.5 + \left(\frac{56 - 43}{33} \right) \cdot 10$$



*experiment consist of n repeated trials
trials result in an outcome 3 can be
simplified success or failure
probability of success P remains constant
trial to trial
repeated trials are independent
probability of exactly 1 occurrence in n
trials is a constant*

*- independent no. of trials or occurrence
- trials clustering i.e. chances of two
or more event happening simultaneously
- concurrently can be assumed zero
- the average no. of occurrence per
unit time is a constant denoted
by λ trials is λ mean of poisson
distribution*

(23) Assuming that IQ has a $N(100, 16)$ distribution. How high an IQ must one have to be in the top 2% of the population. npr

a. 100 b. 105.2 c. 108.2 d. 100.

24. $P(X=x) = \frac{e^{-m} m^x}{x!}$ is (a) poisson distribution

(b) Binomial distribution

X!

(c) Chi-square (d) normal distribution

25. ----- describes the distribution of rare events that occur in a space. (a) Poisson (b) Correlation
(c) Binomial (d) Mendelian

Use the information below to answer questions 26-27

A barrel contains 12 articles; 8 good and 4 defective. If 3 articles are to be drawn,

26. How many ordered samples are possible? (a) 1320 (b) 1330 (c) 1340 (d) 1315

27. How many ordered samples are possible if 1st two draws produce defectives and the third is good?
(a) 97 (b) 96 (c) 94 (d) 92

28. The mean of binomial distribution is (a) p (b) q (c) np (d) cd

29. The variance of binomial distribution is (a) cpq (b) cqp (c) npq (d) npp

30. nC_r is (a) $npr/P!$ (b) $npr/q!$ (c) $npr/0!$ (d) $npr/r!$

Use the information below to answer question 31-36

According to Mendelian theory of inheritance, cross fertilization of related species of red and white flowered plants produce offspring of which 25% are red flowers. If a horticulturist wishes to cross five pairs of red and white flowered plants. What is the probability that of the five offspring:

31. There will be no red flower plant. (a) 0.237 (b) 0.238 (c) 0.239

(d) 0.330

32. There will be one red flower plant (a) 0.396 (b) 0.394 (c) 0.395

(d) 0.400

33. There will 4 or more red flower plant. (a) 0.0255 (b) 0.0256 (c) 0.0155

(d) 0.0156

34. The variance of the above is (a) 0.9475 (b) 0.9375 (c) 0.9565 (d) 0.9765

35. The mean is (a) 1.35 b. 1.36 c. 2.35 (d) 1.25

36. The standard deviation is a. 0.99 (b) 0.96 c. 1.96 d. 1.97

37. The harmonic mean of the following ages 3, 4, 9, 12 a. 5.24 (b) 5.14 c. 5.34 d. 5.56

38. The geometric mean of the following ages 3, 4, 9, 12 a. 7 b. 8 c. 9 (d) 6

$$n = \frac{N}{\sum \frac{1}{x_i}} = \frac{N}{\frac{1}{3} + \frac{1}{4} + \frac{1}{9} + \frac{1}{12}} = \frac{N}{\frac{12+9+4+3}{36}} = \frac{N}{\frac{28}{36}} = \frac{36N}{28} = \frac{9N}{7}$$

$$s = \sqrt{\frac{1}{n} \sum x_i^2 - \left(\frac{\sum x_i}{n} \right)^2} = \sqrt{\frac{1}{9} (3^2 + 4^2 + 9^2 + 12^2) - \left(\frac{3+4+9+12}{9} \right)^2} = \sqrt{\frac{1}{9} (85) - \left(\frac{28}{9} \right)^2} = \sqrt{\frac{85}{9} - \frac{784}{81}} = \sqrt{\frac{850 - 784}{81}} = \sqrt{\frac{66}{81}} = \sqrt{\frac{22}{27}}$$