

NATIONAL MANAGEMENT COLLEGE, THUDUPATHI.

PAPER – 3: BUSINESS MATHEMATICS, LOGICAL REASONING AND STATISTICS

Time Allowed : 1 hour

Maximum Marks: 50

DATE – 27.01.23

ANSWER ALL..

1. A representative value of the class interval for the calculation of mean, standard deviation, mean deviation etc is
(a) class interval (b) class limit (c) class mark (d) none
2. Relative frequencies add up to:
(a) Total frequency (b) 100 (c) 1 (d) cannot be determined.
3. For a moderately skewed distribution, which of the following relationship holds:
(a) Mean - Mode = 3 (Mean - Median) (c) Median - Mode = 3 (Mean - Median)
(b) Mean - Median = 3 (Mean - Mode) (d) Mean - Median = 3 (Median - Mode)
4. "The H.M., A.M. and G.M. of a set of 2 observations are 10.2, 16 and 14 respectively".
This statement is
(a) True (b) False (c) Both (a) & (b) (d) None of these
5. The chance of getting 7 or 11 in a throw of 2 dice is:
(a) $\frac{7}{9}$ (b) $\frac{5}{9}$ (c) $\frac{2}{9}$ (d) None of these
6. If the probability of a horse A winning a race is $\frac{1}{6}$ and the probability of a horse B winning
(a) $\frac{5}{12}$ (b) $\frac{7}{12}$ (c) $\frac{1}{12}$ (d) None of these
7. Which measure of dispersion is based on all the observations?
(a) Mean deviation (b) Standard deviation
(c) Quartile deviation (d) (a) and (b) but not (c)
8. Tom speaks truth in 30 percent cases and Dick speaks truth in 25 percent cases. What is the probability that they would contradict each other :
(a) 0.325 (b) 0.400 (c) 0.925 (d) 0.075
9. In Histogram if the classes are of unequal width then the heights of the rectangles must be proportional to the frequency densities.

17. Data are said to be _____ if the investigator himself is responsible for the collection of the data.

- (a) Primary data (b) Secondary Data
(c) a (or) b (d) None of the above

18. Which of the following is positional average?

- (a) Median (b) GM (c) HM (d) AM

19. If in a moderately skewed distribution the values of mode and mean are 32.1 and 35.4 respectively, then the value of the median is

- (a) 33.3 (b) 34 (c) 34.3 (d) 33

20. If the variance of 5, 7, 9 and 11 is 4, then the coefficient of variation is

- (a) 25 (b) 15 (c) 17 (d) 19

21. A coin is tossed six times, then the probability of obtaining heads and tails alternatively is

- (a) $1/2$ (b) $1/32$ (c) $1/64$ (d) $1/16$

22. SD of first five consecutive natural numbers is

- (a) $\sqrt{10}$ (b) $\sqrt{8}$ (c) $\sqrt{3}$ (d) $\sqrt{2}$

23. 1st quartile is 142, Semi-Inter quartile range is 18. Then median is

- (a) 151 (b) 160 (c) 178 (d) None of these

24. If the mean of the following distribution is 6 then the value of P is

X	2	4	6	10	P+5
Y	3	2	3	1	2

- (a) 7 (b) 5 (c) 11 (d) 8

25. _____ series is continuous.

- (a) Open ended (b) Exclusive (c) Close ended (d) Unequal call intervals

26. The curve obtained by joining the points, whose x coordinates are the upper limits of the class-intervals and y coordinates are corresponding cumulative frequencies is called

- (a) Ogive (b) Histogram (c) Frequency Polygon (d) Frequency Curve

27) Sum of the squares of deviations is minimum when deviations are taken from

- (a) Mean (b) Median (c) Mode (d) An arbitrary value

28) Measures of central tendency are known as

- (a) differences (b) averages (c) both (d) none

29) $(Q_3 - Q_1)/(Q_3 + Q_1)$ is

- (a) coefficient of Quartile Deviation (b) coefficient of Mean Deviation
(c) coefficient of Standard deviation (d) none

30) Data collected on religion from the census reports are:

- (a) Primary data (b) Secondary data
(c) Sample data (d) (a) or (b)

31)) In continuous probability distribution $F(x)$ is called

- a. Frequency distribution function
b. Cumulative distribution function
c. Probability density function
d. None

32)) If X follows normal distribution with $\mu = 50$ and $\sigma = 10$, what is the value of $P(x \leq 60 / x > 50)$?

- a) 0.8413 b) 0.6828 c) 0.1587 d) 0.7256

33) If the two quartiles of $N(\mu, \sigma^2)$ are 14.6 and 25.4 respectively, what is the standard deviation of the distribution ?

- a) 9 b) 6 c) 10 d) 8

34) the total area of the normal curve is

- a. One
b. 50 percent
c. 0.50
d. Any value between 0 and 1

35) what is the probability that a leap year selected at random would contain 53 Saturdays ?

- A) 1/7 B) 2/7 C) 1/12 D) 1/4

36)) Most of the commonly used frequency curves are

- (a) Mixed (b) Inverted J-shaped
(c) U-shaped (d) Bell-shaped

37) If every observation is increased by 5 then:

- (a) SD increase by 5 (b) MD increased by 5
(c) QD increases by 5 (d) None affected

38) The mean of a distribution is 14 and the standard deviation is 5. What is the value of the coefficient of variation?

- (a) 60.4% (b) 70%
(c) 35.7% (d) 27.8%

39) Sum of the squares of deviations is minimum when deviations are taken from

- (a) Mean (b) Median
(c) Mode (d) An arbitrary value

40)) A fire engine rushes to a place of fire accident with a speed of 110 kmph and after the completion of operation returned to the base at a speed of 35 kmph. The average speed per hour in per direction is obtained as _____ Speed.

- (a) Avg. of (b) HM of (c) GM of (d) Half of

41)) If the events A and B are mutually exclusive then

- (A) $P(A + B) = P(A) + P(B)$ (B) $P(A + B) = P(A) - P(B)$
(C) $P(A + B) = P(A)P(B)$ (D) $P(A + B) = 0$

42) When of the following is uni-parametric distribution?

- (a) Normal (b) Poisson (c) Binomial (d) Hyper geometric

43)) If the probability of solving a problem by two students George and James are $\frac{1}{2}$ and $\frac{1}{3}$ respectively then what is the probability of the problem to be solved.

- a) $\frac{2}{3}$ b) $\frac{1}{3}$ c)1 d) $\frac{1}{2}$

44)) All possible outcomes of a random experiment forms the

- a)Sample space b)Events c)Both d)None of these

45) If X and Y are two independent variables such that $X \sim B(n_1, p)$ and $Y \sim B(n_2, p)$ then the parameter of $Z = X + Y$ are:

- (a) $(n_1 + n_2, p)$ (b) $(n_1 - n_2, p)$ (c) $(n_1 + n_2, 2/p)$ (d) None of these

46) If x and y are related as $3x+4y=20$ and the Q.D of x is 12. Then the Q.D of y is

- a)16 b)14 c)10 d)9

47) . Normal Distribution is also known as _____

- a) Cauchy's Distribution b) Laplacian Distribution
c) Gaussian Distribution d) Lagrangian Distribution

48) . For a Poisson variate X , $P(X = 1) = P(X = 2)$. What is the mean of X ?

- (a) 1.00. (b) 1.50. (c) 2.00. (d) 2.50.

49) Binomial distribution is symmetrical if

- (a) $p > q$ (b) $p < q$ (c) $p = q$ (d) none

50) . For a event A which is certain, $P(A)$ is equal to

- (a) 1 (b) 0 (c) -1 (d) none