24 STATISTICAL CONSIDERATION IN DESIGN

24.1 Histogram is

(a) a set of rectangles

(b) a line graph of class frequency plotted against class marks

(c) a bell shaped smooth curve

(d) none of the above

24.2 Frequency polygon is

(a) a set of rectangles

(b) a line graph of class frequency plotted against class marks

(c) a bell shaped smooth curve

(d) none of the above

24.3 Central tendency of population is

(a) spread of data or extend to which the observations are scattered

(b) mid point of distribution where most of the data cluster

(c) concentration of data at either low or high end

(d) distribution with sharp peak

24.4 Dispersion of population is

(a) spread of data or extend to which the observations are scattered

(b) mid point of distribution where most of the data cluster

(c) concentration of data at either low or high end

(d) distribution with sharp peak

24.5 Skewness of population is

(a) spread of data or extend to which the observations are scattered

(b) mid point of distribution where most of the data cluster

(c) concentration of data at either low or high end

(d) measure of sharp peak

24.6 Kurtosis of population is

(a) spread of data or extend to which the observations are scattered

(b) mid point of distribution where most of the data cluster

(c) concentration of data at either low or high end

(d) measure of sharp peak

24.7 Central tendency of population is measured in units of

(a) standard deviation (b) arithmetic mean

(c) standard variable (d) square of standard deviation

24.8 Dispersion of population is measured in units of

(a) standard deviation (b) arithmetic mean

(c) geometric mean (d) square of standard deviation

24.9 Standard variable is

(a) square of standard deviation

(b) arithmetic mean

(c) root mean square deviation from the mean

(d) deviation from mean in units of standard deviation

24.10 Standard deviation is

(a) square of standard variable

(b) arithmetic mean

(c) root mean square deviation from the mean

(d) deviation from mean in units of standard deviation

24.11 The area below normal curve from ($Z = -\infty$) to ($Z = +\infty$) is

(a) 1 (b) 0.6827

(c) 0.9545 (d) 0.9973

where Z is standard variable

24.12 The area below normal curve from ($Z = -1$) to ($Z = +1$) is

(a) 1 (b) 0.6827

(c) 0.9545 (d) 0.9973

where Z is standard variable

24.13 The area below normal curve from ($Z = -2$) to ($Z = +2$) is

(a) 1 (b) 0.6827

(c) 0.9545 (d) 0.9973

where Z is standard variable

24.14 The area below normal curve from ($Z = -3$) to ($Z = +3$) is

(a) 1 (b) 0.6827

(c) 0.9545 (d) 0.9973

where Z is standard variable

24.15 When two populations with means μ_X and μ_Y are added, the mean of resultant population is given by,

(a) $(\mu_X + \mu_Y)$ (b) $(\mu_X - \mu_Y)$

(c) $(\mu_X \mu_Y)$ (d) (μ_X / μ_Y)

24.16 When population Y with means μ_Y is subtracted from population X with mean μ_X, the mean of resultant population is given by,

(a) $(\mu_X + \mu_Y)$ (b) $(\mu_X - \mu_Y)$

(c) $(\mu_X \mu_Y)$ (d) (μ_X / μ_Y)

24.17 When two populations with means μ_X and μ_Y are multiplied, the mean of resultant population is given by,

(a) $(\mu_X + \mu_Y)$ (b) $(\mu_X - \mu_Y)$

(c) $(\mu_X \mu_Y)$ (d) (μ_X / μ_Y)

24.18 When population X with mean μ_X, is divided by population Y with mean μ_Y, the mean of resultant population is given by,

(a) $(\mu_X + \mu_Y)$ (b) $(\mu_X - \mu_Y)$

(c) $(\mu_X \mu_Y)$ (d) (μ_X / μ_Y)

24.19 When two populations X and Y are added, the standard deviation of resultant population is given by,

(a) $(\hat{\sigma}_X + \hat{\sigma}_Y)$ (b) $(\hat{\sigma}_X^2 + \hat{\sigma}_Y^2)$

(c) $\sqrt{(\hat{\sigma}_X^2 + \hat{\sigma}_Y^2)}$ (d) $\sqrt{(\hat{\sigma}_X^2 - \hat{\sigma}_Y^2)}$

24.20 When population Y is subtracted from population X, the standard deviation of resultant population is given by,

(a) $(\hat{\sigma}_X + \hat{\sigma}_Y)$ (b) $(\hat{\sigma}_X^2 + \hat{\sigma}_Y^2)$

(c) $\sqrt{(\hat{\sigma}_X^2 + \hat{\sigma}_Y^2)}$ (d) $\sqrt{(\hat{\sigma}_X^2 - \hat{\sigma}_Y^2)}$

24.21 The resultant population is normally distributed,

(a) when populations of two normally distributed random variables are added

(b) when populations of two normally distributed random variables are subtracted

(c) when populations of two normally distributed random variables are multiplied

(d) any one of above

24.22 In statistically controlled system,

(a) variations due to assignable causes are corrected

(b) variations due to chance causes are corrected

(c) variations due to assignable and chance causes are corrected

(d) none of these

24.23 There is no rejection of components when

(a) design tolerance is equal to $(\pm 3\hat{\sigma})$ and the process is centered

(b) design tolerance is slightly more than $(\pm 3\hat{\sigma})$

(c) design tolerance is $(\pm 4\hat{\sigma})$

(d) any one of above

24.24 The reliability of ball bearing selected from manufacture's catalogue is

(a) 90% (b) 50%

(c) 99% (d) more than 90%

Answers:

24.1 (a)	24.2 (b)	24.3 (b)	24.4 (a)	24.5 (c)
24.6 (d)	24.7 (b)	24.8 (a)	24.9 (d)	24.10 (c)
24.11 (a)	24.12 (b)	24.13 (c)	24.14 (d)	24.15 (a)
24.16 (b)	24.17 (c)	24.18 (d)	24.19 (c)	24.20 (c)
24.21 (d)	24.22 (a)	24.23 (d)	24.24 (a)	