

Topic:- DU\_J19\_MA\_STATS

**1) If the number of items produced in a factory during a week is a random variable with mean 100 and variance 400, then the probability that this week's production will be at least 130 is: [Question ID = 26192]**

1.  $1/2$  [Option ID = 44763]
2.  $\leq 1/2$  [Option ID = 44765]
3.  $4/9$  [Option ID = 44764]
4.  $\leq 4/9$  [Option ID = 44766]

**Correct Answer :-**

- $1/2$  [Option ID = 44763]

**2) If the correlation coefficient between X and Y is +0.73, then the correlation coefficient between  $3-2X$  and  $5-3Y$  is: [Question ID = 26184]**

1. +0.73 [Option ID = 44732]
2. 1 [Option ID = 44734]
3.  $(0.73)^2$  [Option ID = 44733]
4. -0.73 [Option ID = 44731]

**Correct Answer :-**

- -0.73 [Option ID = 44731]

**3) If Karl Pearson's coefficient of skewness of a distribution is 0.32, its mean is 29.6 and standard deviation is 6.5, then mode of the distribution is: [Question ID = 26190]**

1. 27.51 [Option ID = 44756]
2. 27.00 [Option ID = 44758]
3. 27.5 [Option ID = 44757]
4. 27.52 [Option ID = 44755]

**Correct Answer :-**

- 27.52 [Option ID = 44755]

**4) In any discrete series ( when all the values are different), the relationship between standard deviation (SD) and mean deviation (MD) is**

**[Question ID = 26202]**

1.  $SD = MD$  [Option ID = 44803]
2.  $SD < MD$  [Option ID = 44804]
3.  $SD \geq MD$  [Option ID = 44805]
4.  $SD \neq MD$  [Option ID = 44806]

**Correct Answer :-**

- $SD = MD$  [Option ID = 44803]

**5) ANOVA procedure is used for data that was obtained from four groups each comprised of five observations. The degrees of freedom for critical value of F are: [Question ID = 26215]**

1. 3 and 17 [Option ID = 44858]

2. 3 and 19 [Option ID = 44855]
3. 3 and 16 [Option ID = 44857]
4. 3 and 20 [Option ID = 44856]

**Correct Answer :-**

- 3 and 19 [Option ID = 44855]

**6) How many two factor interactions are there in a  $2 \times 2 \times 2$  Factorial design? [Question ID = 26213]**

1. 2 [Option ID = 44847]
2. 1 [Option ID = 44850]
3. 3 [Option ID = 44848]
4. 4 [Option ID = 44849]

**Correct Answer :-**

- 2 [Option ID = 44847]

**7) The Central Limit Theorem is important in Statistics because: [Question ID = 26194]**

1. For any population, it says the sampling distribution of the sample mean is approximately normal, regardless of the sample size [Option ID = 44772]
2. For any sized sample, it says the sampling distribution of the sample mean is approximately normal. [Option ID = 44774]
3. For a large n, it says the population is approximately normal [Option ID = 44771]
4. For a large n, it says the sampling distribution of the sample mean is approximately normal, regardless of the shape the population [Option ID = 44773]

**Correct Answer :-**

- For a large n, it says the population is approximately normal [Option ID = 44771]

**8) Under proportional allocation in stratified sampling, the size of the sample from each stratum depends on:**

**[Question ID = 26212]**

1. Size of the stratum [Option ID = 44844]
2. Population size [Option ID = 44845]
3. Total sample size [Option ID = 44843]
4. All of the above [Option ID = 44846]

**Correct Answer :-**

- Total sample size [Option ID = 44843]

**9) The blood pressure (B.P.) of a group of patients was determined. After administering a medicine, the B.P. was measured again. To determine the significance of the medicine, the test to be applied is: [Question ID = 26195]**

1. Z - test [Option ID = 44775]
2. Paired t- test [Option ID = 44776]
3.  $\chi^2$ - test [Option ID = 44777]
4. F-test [Option ID = 44778]

**Correct Answer :-**

- Z - test [Option ID = 44775]

**10) The standard deviation of a distribution is 4. The value of the fourth central moment ( $\mu_4$ ) in order that the distribution be mesokurtic should be [Question ID = 26197]**

1. Equal to 3 [Option ID = 44786]
2. Equal to 768 [Option ID = 44785]

- Greater than 768 [Option ID = 44783]
- Less than 768 [Option ID = 44784]

**Correct Answer :-**

- Greater than 768 [Option ID = 44783]

**11) If N = 60, (A) = 45, (B) = 35 and (AB) = 25 then the two attributes A and B are [Question ID = 26196]**

- Independent [Option ID = 44779]
- Positively associated [Option ID = 44781]
- Negatively associated [Option ID = 44780]
- Nothing can be said [Option ID = 44782]

**Correct Answer :-**

- Independent [Option ID = 44779]

**12) For a 2<sup>4</sup> factorial experiment the principal block is ((1), ab, cd, abcd). The confounded effects are: [Question ID = 26216]**

- AC, BD, ABCD [Option ID = 44859]
- ABC, BCD, AD [Option ID = 44862]
- AB, CD, ABCD [Option ID = 44861]
- AD, BC, ABCD [Option ID = 44860]

**Correct Answer :-**

- AC, BD, ABCD [Option ID = 44859]

**13) Cayley Hamilton Theorem states [Question ID = 26167]**

- Every square matrix is invertible. [Option ID = 44663]
- Every square matrix satisfies its characteristic equation [Option ID = 44665]
- Every square matrix satisfies a given polynomial equation. [Option ID = 44664]
- Every square matrix can be reduced to Normal form. [Option ID = 44666]

**Correct Answer :-**

- Every square matrix is invertible. [Option ID = 44663]

**14) Let X and Y be two variables and r(X,Y) be the correlation coefficient between them , then which of the following is always true? [Question ID = 26201]**

- If X and Y are linearly related then  $r(X,Y) = 0$  [Option ID = 44801]
- If X and Y are independent then  $r(X,Y) = 0$  [Option ID = 44800]
- If  $r(X,Y) = 0$ , then X and Y are independent [Option ID = 44799]
- None of the above [Option ID = 44802]

**Correct Answer :-**

- If  $r(X,Y) = 0$ , then X and Y are independent [Option ID = 44799]

**15) The relationship between Pearson's  $\beta$  and  $\gamma$  coefficients is [Question ID = 26198]**

1.  $\gamma_2 = \beta_2 - 3, \gamma_1 = +\sqrt{\beta_1}$  [Option ID = 44787]

2.  $\gamma_2 = \beta_2 + 3, \gamma_1 = \sqrt{\beta_1} - 1$  [Option ID = 44790]

3.  $\gamma_2 = \beta_2 + 3, \gamma_1 = +\sqrt{\beta_1}$  [Option ID = 44788]

4.  $\gamma_2 = \beta_2 - 1, \gamma_1 = \sqrt{\beta_1} + 1$  [Option ID = 44789]

**Correct Answer :-**

•  $\gamma_2 = \beta_2 - 3, \gamma_1 = +\sqrt{\beta_1}$  [Option ID = 44787]

**16) The difference between the expected value of a statistic and the value of the parameter is being estimated is called [Question ID = 26211]**

1. Non sampling error [Option ID = 44841]
2. Bias [Option ID = 44842]
3. Sampling error [Option ID = 44839]
4. Standard error [Option ID = 44840]

**Correct Answer :-**

- Sampling error [Option ID = 44839]

**17) A beta variable of the first kind with parameters (1,1) is: [Question ID = 26180]**

1. uniform variable over (0,1) [Option ID = 44718]
2. beta variable of the second kind [Option ID = 44716]
3. exponential variable with mean 1 [Option ID = 44715]
4. N(0,1) [Option ID = 44717]

**Correct Answer :-**

- exponential variable with mean 1 [Option ID = 44715]

**18) Measure of skewness of the Poisson distribution P( $\lambda$ ) is [Question ID = 26199]**

1.  $1/\lambda^2$  [Option ID = 44791]
2. None of the above [Option ID = 44794]
3.  $\lambda$  [Option ID = 44792]
4.  $1/\lambda$  [Option ID = 44793]

**Correct Answer :-**

- $1/\lambda^2$  [Option ID = 44791]

**19) Let X and Y have the joint probability mass function**

$$P(X = x, Y = y) = \frac{1}{3x}, y = 1, 2, \dots, x; x = 1, 2, 3.$$

Then the value of the conditional expectation  $E(Y|X = 3)$  is:

**[Question ID = 26188]**

1. 2 [Option ID = 44749]
2. 2.5 [Option ID = 44750]
3. 1 [Option ID = 44747]
4. 1.5 [Option ID = 44748]

**Correct Answer :-**

- 1 [Option ID = 44747]

**20)**

It is proposed to test  $H_0:\theta=\theta_0$  against  $H_1:\theta=\theta_1$  given a sample of size n from N( $\theta, 1$ ). The critical region of the most powerful test depends on

[Question ID = 26207]

1.  $\theta_0$  and the sign of  $\theta_1 - \theta_0$  only [Option ID = 44826]
2.  $\theta_1$  only [Option ID = 44824]
3.  $[\theta_0 - \theta_1]$  only [Option ID = 44825]
4.  $\theta_0$  only [Option ID = 44823]

Correct Answer :-

- $\theta_0$  only [Option ID = 44823]

21)

If  $X_1, X_2, \dots, X_n$  is a random sample from a normal population with mean  $\mu$  and variance  $\sigma^2$  (unknown), then the sampling distribution of  $\frac{\sqrt{n}(\bar{X} - \mu)}{S}$ ,  $S^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2$ , is:

[Question ID = 26178]

$$N\left(\mu, \frac{\sigma^2}{n}\right)$$

1. [Option ID = 44707]
2. t with n degrees of freedom when n is small ( $\leq 30$ ) [Option ID = 44709]
3. t with n-1 degrees of freedom when n is small ( $\leq 30$ ) [Option ID = 44708]
4. t with n-1 degrees of freedom for all n. [Option ID = 44710]

Correct Answer :-

$$N\left(\mu, \frac{\sigma^2}{n}\right)$$

- [Option ID = 44707]

22)

A random sample  $x_1, x_2, \dots, x_n$ , of size n is taken from the population  $f(x, \alpha) = (\alpha + 1)x^\alpha, 0 \leq x \leq 1$ . The maximum likelihood estimate of  $\alpha$  is given by

[Question ID = 26205]

1.  $\frac{n}{\sum_{i=1}^n \log x_i}$  [Option ID = 44815]
2.  $-[1 + (\frac{n}{\sum_{i=1}^n \log x_i})]$  [Option ID = 44818]

3.  $1 + \left( \frac{n}{\sum_{i=1}^n \log x_i} \right)$  [Option ID = 44816]

4.  $-1 + \left( \frac{n}{\sum_{i=1}^n \log x_i} \right)$  [Option ID = 44817]

**Correct Answer :-**

•  $\frac{n}{\sum_{i=1}^n \log x_i}$  [Option ID = 44815]

**23)** The general solution of exact differential equation  $(x^2 - ay)dx + (y^2 - ax)dy = 0$  is

**[Question ID = 26172]**

1. None of these [Option ID = 44686]

2.  $x^3 - 6axy + y^3 = c$  [Option ID = 44683]

3.  $x^3 + 6axy + y^3 = c$  [Option ID = 44685]

4.  $x^3 - 3axy + y^3 = c$  [Option ID = 44684]

**Correct Answer :-**

•  $x^3 - 6axy + y^3 = c$  [Option ID = 44683]

**24)** The tangent to the curve  $x(x^2 + y^2) = a(x^2 - y^2)$  at origin are

**[Question ID = 26175]**

1.  $y = 0, y = a$  [Option ID = 44697]

2.  $x = 0, y = 0$  [Option ID = 44698]

3.  $y = x, y = -x$  [Option ID = 44696]

4.  $x = 0, x = a$  [Option ID = 44695]

**Correct Answer :-**

•  $x = 0, x = a$  [Option ID = 44695]

**25)** If  $z = \sin^{-1} \frac{x}{y} + \tan^{-1} \frac{x}{y}$  then  $x \frac{dz}{dx} + y \frac{dz}{dy}$  equals

**[Question ID = 26170]**

1. 0 [Option ID = 44675]

2. 1 [Option ID = 44678]

3.  $\frac{y}{\sqrt{y^2 - x^2}}$  [Option ID = 44676]

4.  $\frac{x^2}{x^2 + y^2}$  [Option ID = 44677]

**Correct Answer :-**

- 0 [Option ID = 44675]

26)

If  $X$  is a binomial variate with parameters  $(5, \theta)$  then an unbiased estimator of  $\theta(\theta - 1)$  is

[Question ID = 26210]

1.  $\frac{X(X-1)}{(5X-X^2)}$  [Option ID = 44835]
2.  $\frac{20}{(X^2-5X)}$  [Option ID = 44837]
3.  $\frac{20}{X(1-X)}$  [Option ID = 44836]
4.  $\frac{20}{X(1-X)}$  [Option ID = 44838]

Correct Answer :-

- $\frac{X(X-1)}{(5X-X^2)}$  [Option ID = 44835]

27)

If the mean deviation of  $x$  from its mean is 5, then the mean deviation of  $y = 2x + 3$  from its mean is:

[Question ID = 26191]

1. 13 [Option ID = 44760]
2. 5 [Option ID = 44762]
3. 10 [Option ID = 44761]
4. 17 [Option ID = 44759]

Correct Answer :-

- 17 [Option ID = 44759]

28)

Let  $X_1$  and  $X_2$  be independent random variables with respective moment

generating functions as  $M_1(t) = \left(\frac{3}{4} + \frac{1}{4}e^t\right)^3$  and  $M_2(t) = e^{2(e^t-1)}$ ,  $-\infty < t < \infty$ .

Then the value of  $P(X_1 + X_2 = 0)$  is:

[Question ID = 26181]

1.  $\frac{27}{64}e^{-2}$  [Option ID = 44720]

2.  $\frac{11}{64}e^{-2}$  [Option ID = 44721]

3.  $\frac{81}{64}e^{-2}$  [Option ID = 44719]

4.  $\frac{19}{64}e^{-2}$  [Option ID = 44722]

**Correct Answer :-**

•  $\frac{81}{64}e^{-2}$  [Option ID = 44719]

**29)** If the correlation coefficient of zero order in a set of 3 variates were equal to  $\rho$  each, then the multiple correlation  $R_{1,23}^2$  is equal to:

**[Question ID = 26177]**

1.  $\rho$  [Option ID = 44703]

2.  $\frac{\rho^2}{1+\rho}$  [Option ID = 44705]

3.  $\frac{2\rho^2}{1+\rho}$  [Option ID = 44704]

4. +1 [Option ID = 44706]

**Correct Answer :-**

•  $\rho$  [Option ID = 44703]

**30)**

Let  $\bar{x}$  be the sample mean of observations drawn from a distribution with probability density function as

$$f(x) = \begin{cases} \frac{1}{6\theta} & , \quad 0 < x < 6\theta \\ 0 & \text{otherwise} \end{cases}$$

Which one of the following is a method of moment estimator of  $\theta$ ?

**[Question ID = 26206]**

1.  $2\bar{x}$  [Option ID = 44820]

2.  $\bar{x}$  [Option ID = 44819]

3.  $\frac{1}{3}\bar{x}$  [Option ID = 44822]

4.  $\frac{1}{2}\bar{x}$  [Option ID = 44821]



**Correct Answer :-**

- $\bar{x}$  [Option ID = 44819]

**31)**

If the scores (X) in Mathematics and (Y) in Statistics of ten students have the following summarized figures:

$$\sum X = 60, \sum Y = 70, \sum X^2 = 520, \sum Y^2 = 650, \sum XY = 440;$$

Then the correlation coefficient between the two scores is:

**[Question ID = 26187]**

1.  $\frac{22}{13\sqrt{5}}$  [Option ID = 44743]

2.  $-\frac{1}{8}$  [Option ID = 44746]

3.  $\frac{1}{8}$  [Option ID = 44744]

4.  $-\frac{22}{13\sqrt{5}}$  [Option ID = 44745]

**Correct Answer :-**

- $\frac{22}{13\sqrt{5}}$  [Option ID = 44743]

**32)**

Let  $\bar{X}$  be the mean of a random sample from  $N(\mu, 1)$  population. If the null hypothesis  $H_0: \mu = \mu_0$  is rejected when  $\bar{X} > \mu_0$ , then the size of the test will be:

**[Question ID = 26208]**

1. 0.50 [Option ID = 44828]
2. 0.05 [Option ID = 44827]
3. 0.95 [Option ID = 44830]
4. 0.75 [Option ID = 44829]

**Correct Answer :-**

- 0.05 [Option ID = 44827]

**33)**

If the joint p.d.f. of the random variables (X, Y) is given by

$$f(x, y) = \begin{cases} x + y, & 0 \leq x \leq 1, 0 \leq y \leq 1 \\ 0, & \text{otherwise,} \end{cases}$$

then the conditional p.d.f. of X given Y = y is:

[Question ID = 26179]

1.  $\frac{(x+y)}{(1+2y)}$  [Option ID = 44714]

2.  $\frac{(x+y)}{(1+2x)}$  [Option ID = 44712]

3.  $\frac{2(x+y)}{(1+2y)}$  [Option ID = 44713]

4.  $\frac{2(x+y)}{(1+2x)}$  [Option ID = 44711]

**Correct Answer :-**

•  $\frac{2(x+y)}{(1+2x)}$  [Option ID = 44711]

34) If  $y = \sin px + \cos px$  then  $y_n$  (the  $n^{\text{th}}$  derivative of y w.r.t. x) equals

[Question ID = 26168]

1. 0 [Option ID = 44668]

2. 1 [Option ID = 44667]

3.  $p^n [1 + (-1)^n \sin 2px]^{1/2}$  [Option ID = 44670]

4.  $p^n [1 + \sin 2px]^{1/2}$  [Option ID = 44669]

**Correct Answer :-**

• 1 [Option ID = 44667]

35)

Let  $X_1, X_2, \dots$  be a sequence of independent and identically distributed Chi-square random variables, each having 4 degrees of freedom. Define

$S_n = \sum_{i=1}^n X_i^2$ ,  $n = 1, 2, \dots$ . If  $\frac{S_n}{n} \xrightarrow{p} \mu$ , as  $n \rightarrow \infty$ , then  $\mu$  is equal to:

[Question ID = 26182]

1. 32 [Option ID = 44726]
2. 24 [Option ID = 44725]
3. 8 [Option ID = 44723]
4. 16 [Option ID = 44724]

**Correct Answer :-**

- 8 [Option ID = 44723]

**36)**

If  $\rho$  is the correlation coefficient between X and Y, then the minimum value of  $Var(Y - aX)$ , over all the values of a, is given by:

**[Question ID = 26183]**

1.  $(1 - \rho^2)Var(Y)$  [Option ID = 44730]

2.  $\frac{\rho^2 Var(X)}{Var(Y)}$  [Option ID = 44728]

3.  $\frac{\rho^2 Var(Y)}{Var(X)}$  [Option ID = 44727]

4.  $\rho^2 Var(Y)$  [Option ID = 44729]

**Correct Answer :-**

- $\frac{\rho^2 Var(Y)}{Var(X)}$  [Option ID = 44727]

**37)**

There are 3 persons A, B, C. The probability that A alone will survive for 10 years is  $\frac{4}{105}$  and the probability that C alone will die within 10 years is  $\frac{2}{21}$ .

Assuming that the events of the survival of A, B and C can be regarded as independent, the probability of surviving 10 years for person B is:

**[Question ID = 26185]**

1.  $\frac{2}{5}$  [Option ID = 44736]

2.  $\frac{3}{5}$  [Option ID = 44738]

3.  $\frac{5}{7}$  [Option ID = 44737]

4.  $\frac{2}{7}$  [Option ID = 44735]

**Correct Answer :-**

- $\frac{2}{7}$  [Option ID = 44735]

38)  $\int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx$  equals

**[Question ID = 26437]**

1. 0 [Option ID = 45744]
2.  $\pi$  [Option ID = 45743]
3.  $\pi/2$  [Option ID = 45745]
4.  $\pi/4$  [Option ID = 45746]

**Correct Answer :-**

- $\pi$  [Option ID = 45743]

39) The following system of linear equations

$$x_1 + 2x_2 + x_3 = 3$$

$$2x_1 + 3x_2 + x_3 = 3$$

$$3x_1 + 5x_2 + 2x_3 = 1$$

has

**[Question ID = 26176]**

1. no solution [Option ID = 44700]
2. a unique solution [Option ID = 44699]
3. exactly three solutions [Option ID = 44702]
4. infinite number of solutions [Option ID = 44701]

**Correct Answer :-**

- a unique solution [Option ID = 44699]

40)

Let  $r$  be the observed number of successes in  $n$  Bernoulli trials with probability  $\pi$  of success. Then M.V.U.E. of  $\pi(1-\pi)$  is:

**[Question ID = 26204]**

1.  $\frac{r}{n} \left(1 - \frac{r}{n}\right)$  [Option ID = 44811]

2.  $\frac{r}{n} \left( \frac{n-r}{n-1} \right)$  [Option ID = 44814]

3.  $\frac{r}{n}$  [Option ID = 44813]

4.  $\frac{r}{n} \left( 1 + \frac{r}{n} \right)$  [Option ID = 44812]

**Correct Answer :-**

•  $\frac{r}{n} \left( 1 - \frac{r}{n} \right)$  [Option ID = 44811]

**41)**

If  $x_1, x_2, \dots, x_n$ , is a random sample from a normal population  $N(\mu, 1)$  then an unbiased estimator of  $1 + \mu^2$  is

**[Question ID = 26203]**

1.  $\frac{1}{n} \sum_{i=1}^n x_i^2$  [Option ID = 44807]

2.  $n^{-1} \sum_{i=1}^n (x_i^2 - \bar{x}^2)$  [Option ID = 44809]

3.  $\sum_{i=1}^n x_i^2$  [Option ID = 44810]

4.  $\frac{1}{n-1} \sum_{i=1}^n (x_i^2 - \bar{x}^2)$  [Option ID = 44808]

**Correct Answer :-**

•  $\frac{1}{n} \sum_{i=1}^n x_i^2$  [Option ID = 44807]

**42)** Given that the roots of the equation  $x^3 - px^2 + qx - r = 0$  are in G.P. (Geometric progression), then

**[Question ID = 26174]**

1.  $p^2 q^2 = r$  [Option ID = 44694]

2.  $pqr = 1$  [Option ID = 44691]

3.  $p^3 = rq^3$  [Option ID = 44692]

4.  $rp^3 = q^3$  [Option ID = 44693]

**Correct Answer :-**

•  $pqr = 1$  [Option ID = 44691]

**43)** For a  $2^5$  factorial experiment consisting of  $2^3$  blocks of size  $2^2$  each, the number of independent effect(s) confounded with blocks is/are

**[Question ID = 26214]**

- 1 [Option ID = 44854]
- 4 [Option ID = 44851]
- 2 [Option ID = 44853]
- 3 [Option ID = 44852]

**Correct Answer :-**

- 4 [Option ID = 44851]

**44) Consider two urns. The first contains two white and seven black balls, and the second contains five white and six black balls. A fair coin is tossed and then draw a ball from the first urn or the second urn depending on whether the outcome was heads or tails. Then the probability that the outcome of the toss was heads given that a white ball was selected is: [Question ID = 26186]**

1. 67/99 [Option ID = 44742]
2. 2/9 [Option ID = 44739]
3. 22/67 [Option ID = 44741]
4. 5/11 [Option ID = 44740]

**Correct Answer :-**

- 2/9 [Option ID = 44739]

**45) The regression lines of Y on X and of X on Y are  $Y = aX+b$  and  $X = cY+d$ , then the ratio of standard deviations of X and Y is [Question ID = 26200]**

1.  $\sqrt{c/a}$  [Option ID = 44796]
2.  $\sqrt{a/(c+1)}$  [Option ID = 44798]
3.  $\sqrt{a/c}$  [Option ID = 44795]
4.  $\sqrt{(c+1)/a}$  [Option ID = 44797]

**Correct Answer :-**

- $\sqrt{a/c}$  [Option ID = 44795]

**46) Which of the following statements regarding a binomial experiment is false, where n is the number of trials, and p is the probability of success in each trial? [Question ID = 26193]**

1. The standard deviation is  $np(1-p)$  [Option ID = 44768]
2. The trials are independent [Option ID = 44767]
3. The mean is  $np$  [Option ID = 44769]
4. There are only two possible outcomes [Option ID = 44770]

**Correct Answer :-**

- The trials are independent [Option ID = 44767]

**47) Which one of the following tests is used for testing the randomness for a given sample? [Question ID = 26209]**

1. Median test [Option ID = 44832]
2. Sign test [Option ID = 44831]

3. Wilcoxon-Mann-Whitney U-test [Option ID = 44834]
4. Run test [Option ID = 44833]

**Correct Answer :-**

- Sign test [Option ID = 44831]

**48) Which one of the following statements about the derivability is NOT true? [Question ID = 26169]**

1. the function  $f(x) = |x - 1|$  is derivable at  $x=2$  [Option ID = 44674]
2. Every continuous function is derivable [Option ID = 44671]
3. The function  $f(x) = |x|$  is continuous on  $\mathbb{R}$  [Option ID = 44672]
4. The function  $f(x) = |x|$  is derivable on  $\mathbb{R} \setminus \{0\}$  [Option ID = 44673]

**Correct Answer :-**

- Every continuous function is derivable [Option ID = 44671]

**49) A system of 5 equations  $AX = b$  in 5 unknowns, has a solution if**

**[Question ID = 26171]**

1.  $\text{rank}(A) = \text{rank}(A: b)$  [Option ID = 44679]
2.  $\text{rank}(A: b) - \text{rank}(A) = 1$  [Option ID = 44682]
3.  $\text{rank}(A) + \text{rank}(A: b) = 5$  [Option ID = 44681]
4.  $\text{rank}(A) < \text{rank}(A: b)$  [Option ID = 44680]

**Correct Answer :-**

- $\text{rank}(A) = \text{rank}(A: b)$  [Option ID = 44679]

**50) An unbiased die is tossed successively till a six occurs. The expected number of tosses required is: [Question ID = 26189]**

1. 6 [Option ID = 44753]
2. 7 [Option ID = 44754]
3. 5 [Option ID = 44752]
4. 4 [Option ID = 44751]

**Correct Answer :-**

- 4 [Option ID = 44751]