

National Testing Agency

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Statistics

Section Id :	611987448
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Number of Questions to be attempted :	75
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Sub-Section Number :	1
Sub-Section Id :	611987959
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 61198733912 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

Which of the following statement(s) is/are correct

A. If $a_n \geq 0 \forall n$, then $\sum_{n=1}^{\infty} a_n$ converges $\Rightarrow \sum_{n=1}^{\infty} \sqrt{a_n}$ converges

B. If $a_n \geq 0 \forall n$, then $\sum_{n=1}^{\infty} na_n$ converges $\Rightarrow \sum_{n=1}^{\infty} a_n$ converges

C. If $a_n \geq 0$ and $a_{n+1} \leq a_n \forall n$, then $\sum_{n=1}^{\infty} a_n^2$ converges $\Rightarrow \sum_{n=1}^{\infty} (-1)^n a_n$ converges

Choose the **correct** answer from the options given below:

1. A & B Only
2. A & C Only
3. B Only
4. B & C Only

Options :

611987133601. 1
611987133602. 2
611987133603. 3
611987133604. 4

**Question Number : 1 Question Id : 61198733912 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical**

निम्नलिखित में से कौन से कथन सत्य है:-

A. यदि $a_n \geq 0 \forall n$, तो $\sum_{n=1}^{\infty} a_n$ अभिसारित होता है $\Rightarrow \sum_{n=1}^{\infty} \sqrt{a_n}$ अभिसारित होता है।

B. यदि $a_n \geq 0 \forall n$, तो $\sum_{n=1}^{\infty} na_n$ अभिसारित होता है $\Rightarrow \sum_{n=1}^{\infty} a_n$ अभिसारित होता है

C. यदि $a_n \geq 0$ और $a_{n+1} \leq a_n \forall n$, तो $\sum_{n=1}^{\infty} a_n^2$ अभिसारित होता है $\Rightarrow \sum_{n=1}^{\infty} (-1)^n a_n$ अभिसारित होता है

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

1. A और B केवल
2. A और C केवल
3. B केवल
4. B और C केवल

Options :

611987133601. 1
611987133602. 2
611987133603. 3
611987133604. 4

Question Number : 2 Question Id : 61198733913 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For each integer $n > 1$, $a_n = \frac{1}{\log_e n}$, we have

A. The sequence $\{a_n\}$ converges

B. $\sum_{n=1}^{\infty} a_n$ converges

C. $\sum_{n=1}^{\infty} (-1)^n a_n^2$ converges

Choose the **correct** answer from the options given below:

1. A Only
2. A & B Only
3. A & C Only
4. B & C Only

Options :

611987133605. 1

611987133606. 2

611987133607. 3

611987133608. 4

Question Number : 2 Question Id : 61198733913 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

प्रत्येक पूर्णांक के लिए $n > 1$, $a_n = \frac{1}{\log_e n}$, हमारे पास है:-

A. श्रेणी $\{a_n\}$ अभिसारित होती है।

B. $\sum_{n=1}^{\infty} a_n$ अभिसारित होता है।

C. $\sum_{n=1}^{\infty} (-1)^n a_n^2$ अभिसारित होता है।

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

1. A केवल
2. A और B केवल
3. A और C केवल
4. B और C केवल

Options :

- 611987133605. 1
- 611987133606. 2
- 611987133607. 3
- 611987133608. 4

Question Number : 3 Question Id : 61198733914 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $-1 < x < 1$, then $\sum_{n=1}^{\infty} nx^{2n} =$

- 1. $\frac{x^3}{(1-x)^2}$
- 2. $\frac{x^2}{(1-x^2)^2}$
- 3. $\frac{x^3}{(1+x)^2}$
- 4. $\frac{x}{(1+x^2)^2}$

Options :

- 611987133609. 1
- 611987133610. 2
- 611987133611. 3
- 611987133612. 4

Question Number : 3 Question Id : 61198733914 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि $-1 < x < 1$ हैं, तो $\sum_{n=1}^{\infty} nx^{2n} =$

1. $\frac{x^3}{(1-x)^2}$

2. $\frac{x^2}{(1-x^2)^2}$

3. $\frac{x^3}{(1+x)^2}$

4. $\frac{x}{(1+x^2)^2}$

Options :

611987133609. 1

611987133610. 2

611987133611. 3

611987133612. 4

Question Number : 4 Question Id : 61198733915 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Evaluate the limit

$$\lim_{n \rightarrow \infty} \sum_{k=1}^n \left(\frac{k}{n^2} - \frac{k^2}{n^3} \right)$$

1. $\frac{2}{3}$

2. $\frac{1}{2}$

3. $\frac{1}{3}$

4. $\frac{1}{6}$

Options :

611987133613. 1

611987133614. 2

611987133615. 3

611987133616. 4

Question Number : 4 Question Id : 61198733915 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

सीमांत (लिमिट) का मूल्यांकन करें

$$\lim_{n \rightarrow \infty} \sum_{k=1}^n \left(\frac{k}{n^2} - \frac{k^2}{n^3} \right)$$

1. $\frac{2}{3}$

2. $\frac{1}{2}$

3. $\frac{1}{3}$

4. $\frac{1}{6}$

Options :

611987133613. 1

611987133614. 2

611987133615. 3

611987133616. 4

Question Number : 5 Question Id : 61198733916 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum value of function $f(x) = \frac{\log_e x}{x^a}, a > 0$, is

1. $\frac{1}{ae}$

2. a^e

3. $\frac{1}{e^a}$

4. e^{a^2}

Options :

611987133617. 1
611987133618. 2
611987133619. 3
611987133620. 4

Question Number : 5 Question Id : 61198733916 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

फलन $f(x) = \frac{\log_e x}{x^a}$, $a > 0$, के लिए महत्तम (अधिकतम) मान है:-

1. $\frac{1}{ae}$
2. a^e
3. $\frac{1}{e^a}$
4. e^{a^2}

Options :

611987133617. 1
611987133618. 2
611987133619. 3
611987133620. 4

Question Number : 6 Question Id : 61198733917 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $f(x) = x^k e^{-x}$, where k is a positive constant. For $x > 0$, what is the maximum value attained by function f ?

1. $\left(\frac{e}{k}\right)^k$
2. $\frac{k\sqrt{e}}{k}$
3. $\frac{(\log k)^k}{k}$
4. $\left(\frac{k}{e}\right)^k$

Options :

- 611987133621. 1
- 611987133622. 2
- 611987133623. 3
- 611987133624. 4

Question Number : 6 Question Id : 61198733917 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि $f(x) = x^k e^{-x}$ हैं, यहाँ k एक धनात्मक स्थिरांक हैं। तो $x > 0$, के लिए फलन f द्वारा प्राप्त किया गया अधिकतम (महत्तम) मान है:-

1. $\left(\frac{e}{k}\right)^k$

2. $\frac{k\sqrt{e}}{k}$

3. $\frac{(\log k)^k}{k}$

4. $\left(\frac{k}{e}\right)^k$

Options :

- 611987133621. 1
- 611987133622. 2
- 611987133623. 3
- 611987133624. 4

Question Number : 7 Question Id : 61198733918 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The derivative of the function $f(x) = x^{\sqrt{x}}$ is

1. $\frac{\sqrt{x}}{x} \left(1 + \frac{\log_e x}{2} \right)$

2. $\frac{x}{\sqrt{x}} \left(1 - \frac{\log_e x}{2} \right)$

3. $\frac{x^{\sqrt{x}}}{\sqrt{x}} \left(1 - \frac{\log_e x}{2} \right)$

4. $\frac{x^{\sqrt{x}}}{\sqrt{x}} \left(1 + \frac{\log_e x}{2} \right)$

Options :

611987133625. 1

611987133626. 2

611987133627. 3

611987133628. 4

Question Number : 7 Question Id : 61198733918 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

फलन $f(x) = x^{\sqrt{x}}$ का अवकलन है :-

1. $\frac{\sqrt{x}}{x} \left(1 + \frac{\log_e x}{2} \right)$

2. $\frac{x}{\sqrt{x}} \left(1 - \frac{\log_e x}{2} \right)$

3. $\frac{x^{\sqrt{x}}}{\sqrt{x}} \left(1 - \frac{\log_e x}{2} \right)$

4. $\frac{x^{\sqrt{x}}}{\sqrt{x}} \left(1 + \frac{\log_e x}{2} \right)$

Options :

611987133625. 1

611987133626. 2

611987133627. 3

611987133628. 4

Question Number : 8 Question Id : 61198733919 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The sum of two non negative numbers x and y is 12. Then the largest possible product of x^2 and y attained at $x =$

1. 8
2. 6
3. 9
4. 5

Options :

611987133629. 1

611987133630. 2

611987133631. 3

611987133632. 4

Question Number : 8 Question Id : 61198733919 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

दो ऋणोत्तर x और y का योग 12 हैं। तो x पर, प्राप्त किया गया सब से बड़ा संभाव्यता, x^2 और y का गुणनफल है:-

1. 8
2. 6
3. 9
4. 5

Options :

611987133629. 1

611987133630. 2

611987133631. 3

611987133632. 4

Question Number : 9 Question Id : 61198733920 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Integration

$\int_0^1 \int_0^x dy \, dx + \int_1^e \int_0^{\frac{1}{x}} dy \, dx$ equals

1. $\int_0^{\frac{1}{e}} \int_y^e dx \, dy + \int_{\frac{1}{e}}^1 \int_{\frac{1}{y}}^y dx \, dy$

2. $\int_0^1 \int_y^{\frac{1}{y}} dx \, dy$

3. $\int_0^1 \int_0^y dx \, dy + \int_1^e \int_0^{\frac{1}{y}} dx \, dy$

4. $\int_0^{\frac{1}{e}} \int_y^e dx \, dy + \int_{\frac{1}{e}}^1 \int_y^{\frac{1}{y}} dx \, dy$

Options :

611987133633. 1

611987133634. 2

611987133635. 3

611987133636. 4

Question Number : 9 Question Id : 61198733920 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

समाकलन $\int_0^1 \int_0^x dy \, dx + \int_1^e \int_0^{\frac{1}{x}} dy \, dx$ बराबर है:-

1. $\int_0^{\frac{1}{e}} \int_y^e dx \, dy + \int_{\frac{1}{e}}^1 \int_{\frac{1}{y}}^y dx \, dy$

2. $\int_0^1 \int_y^{\frac{1}{y}} dx \, dy$

3. $\int_0^1 \int_0^y dx \, dy + \int_1^e \int_0^{\frac{1}{y}} dx \, dy$

4. $\int_0^{\frac{1}{e}} \int_y^e dx \, dy + \int_{\frac{1}{e}}^1 \int_y^{\frac{1}{y}} dx \, dy$

Options :

611987133633. 1

611987133634. 2

611987133635. 3

611987133636. 4

Question Number : 10 Question Id : 61198733921 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $g : \mathbb{R} \rightarrow \mathbb{R}$ be given by $g(x+y) = g(x) + g(y) + 2xy + 1$ for all $x, y \in \mathbb{R}$. If $g(x)$ is differential every where and $g'(0) = -1$, then $g'(x)$ is

1. $2x+1$

2. $2x-1$

3. $x+1$

4. $x-1$

Options :

611987133637. 1

611987133638. 2

611987133639. 3

611987133640. 4

Question Number : 10 Question Id : 61198733921 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $g : \mathbb{R} \rightarrow \mathbb{R}$, दिया जाता है $g(x+y) = g(x) + g(y) + 2xy + 1$ द्वारा, सभी $x, y \in \mathbb{R}$ के लिए। यदि $g(x)$, हर स्थान पर अवकलनीय है और $g'(0) = -1$ तो $g'(x)$ है:-

1. $2x+1$

2. $2x-1$

3. $x+1$

4. $x-1$

Options :

611987133637. 1

611987133638. 2

611987133639. 3

611987133640. 4

Question Number : 11 Question Id : 61198733922 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $A = \begin{bmatrix} n & 0 & 0 \\ 0 & n & 0 \\ 0 & 0 & n \end{bmatrix}$ and $B = \begin{bmatrix} a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \\ c_1 & c_2 & c_3 \end{bmatrix}$, then AB is equal to

1. B
2. B^n
3. nB
4. $A + B$

Options :

611987133641. 1
611987133642. 2
611987133643. 3
611987133644. 4

Question Number : 11 Question Id : 61198733922 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि $A = \begin{bmatrix} n & 0 & 0 \\ 0 & n & 0 \\ 0 & 0 & n \end{bmatrix}$ और $B = \begin{bmatrix} a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \\ c_1 & c_2 & c_3 \end{bmatrix}$, तो AB बराबर है:-

1. B
2. B^n
3. nB
4. $A + B$

Options :

611987133641. 1
611987133642. 2
611987133643. 3
611987133644. 4

Question Number : 12 Question Id : 61198733923 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If A and B are square matrices of order 3×3 such that A is an orthogonal matrix and B is a skew-symmetric matrix, then which of the following statement is true?

1. $|AB| = 1$
2. $|AB| = 0$
3. $|AB| = -1$
4. $|AB| \neq 0$

Options :

611987133645. 1
611987133646. 2
611987133647. 3
611987133648. 4

Question Number : 12 Question Id : 61198733923 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि A और B, क्रम 3×3 के वर्ग आव्यूह हैं, इस प्रकार कि A एक लांबिक आव्यूह हैं और B एक विषम-सममित आव्यूह हैं, तो निम्नलिखित में से कौन से कथन सत्य हैं?

1. $|AB| = 1$
2. $|AB| = 0$
3. $|AB| = -1$
4. $|AB| \neq 0$

Options :

611987133645. 1
611987133646. 2
611987133647. 3
611987133648. 4

Question Number : 13 Question Id : 61198733924 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The number of value(s) of k for which the system of equations $(k+1)x + 8y = 4k$, $kx + (k+3)y = 3k-1$ has no solution is

1. infinite
2. 1
3. 2
4. 3

Options :

- 611987133649. 1
- 611987133650. 2
- 611987133651. 3
- 611987133652. 4

Question Number : 13 Question Id : 61198733924 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

k के मानों की वह संख्या, जिसके लिए, समीकरणों की प्रणाली $(k+1)x + 8y = 4k$, $kx + (k+3)y = 3k-1$ का कोई हल नहीं है:-

- 1. अनंत
- 2. 1
- 3. 2
- 4. 3

Options :

- 611987133649. 1
- 611987133650. 2
- 611987133651. 3
- 611987133652. 4

Question Number : 14 Question Id : 61198733925 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If A is non-singular matrix and $(A-2I)(A-4I) = 0$, then $\frac{1}{6}A + \frac{4}{3}A^{-1}$ is

- 1. I
- 2. 0
- 3. $2I$
- 4. $6I$

Options :

- 611987133653. 1
- 611987133654. 2
- 611987133655. 3
- 611987133656. 4

Question Number : 14 Question Id : 61198733925 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

A व्युत्क्रमणीय आव्यूह है और $(A-2I)(A-4I)=0$, तो $\frac{1}{6}A + \frac{4}{3}A^{-1}$ है

1. I
2. 0
3. 2I
4. 6I

Options :

611987133653. 1
611987133654. 2
611987133655. 3
611987133656. 4

Question Number : 15 Question Id : 61198733926 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

The area of region in the first quadrant bounded by graphs of $y=8x$, $y=x^3$ and $y=8$ is

1. 8
2. 4
3. $\frac{16}{3}$
4. 12

Options :

611987133657. 1
611987133658. 2
611987133659. 3
611987133660. 4

Question Number : 15 Question Id : 61198733926 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

प्रथम चतुर्थांश में, उस क्षेत्र का क्षेत्रफल, जो ग्राफ $y = 8x$, $y = x^3$ और $y = 8$ से परिबद्धित हैं, वह है:-

1. 8
2. 4
3. $\frac{16}{3}$
4. 12

Options :

611987133657. 1
611987133658. 2
611987133659. 3
611987133660. 4

Question Number : 16 Question Id : 61198733927 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When $y = vx$, the differential equation $\frac{dy}{dx} = \frac{y}{x} + \frac{f(y/x)}{f'(y/x)}$ reduced to

1. $\frac{f(v)}{f'(v)} dv = \frac{1}{x} dx$
2. $\frac{f(v)}{f'(v)} dv = x dx$
3. $\frac{f'(v)}{f(v)} dv = \frac{1}{x} dx$
4. $f(v)f'(v)dv = x dx$

Options :

611987133661. 1
611987133662. 2
611987133663. 3
611987133664. 4

Question Number : 16 Question Id : 61198733927 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

जब $y = vx$ है, अवकल समीकरण $\frac{dy}{dx} = \frac{y}{x} + \frac{f(y/x)}{f'(y/x)}$ समानीत होता है:-

1. $\frac{f(v)}{f'(v)} dv = \frac{1}{x} dx$

2. $\frac{f(v)}{f'(v)} dv = x dx$

3. $\frac{f'(v)}{f(v)} dv = \frac{1}{x} dx$

4. $f(v)f'(v)dv = x dx$

Options :

611987133661. 1

611987133662. 2

611987133663. 3

611987133664. 4

Question Number : 17 Question Id : 61198733928 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

What will be the value of 'k' so that the function

$$f(x) = \begin{cases} \frac{x^3 - 8}{x - 2} & , \quad \text{if } x \neq 2 \\ k & \text{if } x = 2 \end{cases}$$

is continuous everywhere?

1. 11

2. 13

3. 12

4. 5

Options :

611987133665. 1

611987133666. 2

611987133667. 3

611987133668. 4

Question Number : 17 Question Id : 61198733928 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

'k' का मान क्या होगा? ताकि फलन

$$f(x) = \begin{cases} \frac{x^3 - 8}{x - 2} & , \text{ यदि } x \neq 2 \\ k & \text{ यदि } x = 2 \end{cases}$$

सभी स्थानों पर संतत हो जाएँ:-

1. 11
2. 13
3. 12
4. 5

Options :

611987133665. 1
611987133666. 2
611987133667. 3
611987133668. 4

Question Number : 18 Question Id : 61198733929 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $X_1, X_2, \dots, X_{100}$ are independent random variables each uniformly distributed on the interval

$(0, 1)$. Then the value of 95th percentile of $S = \sum_{i=1}^{100} X_i$ is (using normal approximation and

$\Phi(1.645) = 0.95$)

1. 63.7
2. 59.20
3. 54.75
4. 71.20

Options :

611987133669. 1
611987133670. 2
611987133671. 3
611987133672. 4

Question Number : 18 Question Id : 61198733929 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $X_1, X_2, \dots, X_{100}$ स्वतंत्र यादृच्छिक चर हैं, जो अंतराल $(0, 1)$ पर, एकसमान रूप से बँटित हैं। तो

$S = \sum_{i=1}^{100} X_i$ के 95th शततमक का मान है:- (प्रसामान्य सन्निकटन और $\Phi(1.645) = 0.95$ का उपयोग करके)

1. 63.7
2. 59.20
3. 54.75
4. 71.20

Options :

611987133669. 1
611987133670. 2
611987133671. 3
611987133672. 4

Question Number : 19 Question Id : 61198733930 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X_1 and X_2 denote the lifetimes (in months) of bulbs produced at factories F_1 and F_2 respectively. The random variables X_1 and X_2 follows exponential with mean 8 and 2 respectively. A shop procures 80% of its supply of bulbs from factory F_1 and 20% from factory F_2 . A randomly selected bulb from a shop is put on test and is found to be working after 4 months. Then the probability that it was procured from factory F_2 is

1. $\frac{1}{3e^{\frac{3}{2}} + 1}$
2. $\frac{1}{4e^{\frac{3}{2}} + 1}$
3. $\frac{1}{4e^{\frac{3}{2}} + 2}$
4. $\frac{1}{3e^{\frac{3}{2}} + 3}$

Options :

611987133673. 1

611987133674. 2

611987133675. 3

611987133676. 4

Question Number : 19 Question Id : 61198733930 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X_1 , और X_2 (महीनों में) क्रमशः फैक्टरी F_1 , और F_2 में जनित बल्बों के जीवन – काल को प्रदर्शित करते हैं। यादृच्छिक चर X_1 , और X_2 चरघातांकी अनुसरण करते हैं और उनके माध्य क्रमशः 8 और 2 हैं। एक दुकान अपने बल्बों की पूर्ति 80% फैक्टरी F_1 से और 20% फैक्टरी F_2 से प्राप्त करता है। दुकान से एक यादृच्छिक चयित बल्ब का परीक्षण किया जाता है और यह पाया जाता है कि चार (4) महीने पश्चात् भी वह कार्य कर रहा है। क्या प्रायिकता है कि प्राप्त किया गया बल्ब फैक्टरी F_2 से है?

1. $\frac{1}{3e^{\frac{3}{2}} + 1}$

2. $\frac{1}{4e^{\frac{3}{2}} + 1}$

3. $\frac{1}{4e^{\frac{3}{2}} + 2}$

4. $\frac{1}{3e^{\frac{3}{2}} + 3}$

Options :

611987133673. 1

611987133674. 2

611987133675. 3

611987133676. 4

Question Number : 20 Question Id : 61198733931 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The continuous random variable X has pdf $f(x) = \frac{1}{2}e^{-|x|}, -\infty < x < \infty$ then the value of 87.5th percentile of the distribution is

1. $\ln 3$
2. $\ln 4$
3. $\ln 5$
4. $\ln 2$

Options :

611987133677. 1
611987133678. 2
611987133679. 3
611987133680. 4

Question Number : 20 Question Id : 61198733931 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

संतत यादृच्छिक चर X का घनत्व फलन $f(x) = \frac{1}{2}e^{-|x|}, -\infty < x < \infty$ है। तो बंटन के 87.5th शतमत्क का मान है:-

1. $\ln 3$
2. $\ln 4$
3. $\ln 5$
4. $\ln 2$

Options :

611987133677. 1
611987133678. 2
611987133679. 3
611987133680. 4

Question Number : 21 Question Id : 61198733932 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Dispersion	I.	Clustering of majority of items in general.
B.	Skewness	II.	Concentration of items at the center part of the series.
C.	Kurtosis	III.	Distribution of items on either side of central value.
D.	Mode	IV.	Scatter of items around the central value.

Choose the **correct** answer from the options given below:

1. A-IV, B-II, C-III, D-I
2. A-I, B-III, C-II, D-IV
3. A-III, B-IV, C-I, D-II
4. A-IV, B-III, C-II, D-I

Options :

611987133681. 1
 611987133682. 2
 611987133683. 3
 611987133684. 4

Question Number : 21 Question Id : 61198733932 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

सूची-I के साथ सूची-II का मिलान कीजिए:

सूची-I		सूची-II	
A.	परिक्षेपण	I.	सामान्य रूप से अधिकांश मदों (वस्तुओं) का गुच्छन
B.	वैषम्य	II.	श्रेणी के केन्द्रीय भाग में, मदों (वस्तुओं) की सांद्रता
C.	ककुदता	III.	केन्द्रीय मान के दोनो तरफ मदों (वस्तुओं) का वितरण बंटन
D.	बहुलक	IV.	केन्द्रीय मान के चारों ओर मदों का प्रकीर्णन (फैलाव)

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

1. A-IV, B-II, C-III, D-I
2. A-I, B-III, C-II, D-IV
3. A-III, B-IV, C-I, D-II
4. A-IV, B-III, C-II, D-I

Options :

611987133681. 1
 611987133682. 2
 611987133683. 3
 611987133684. 4

Question Number : 22 Question Id : 61198733933 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

M = Mean, **Md** = Median, **Mo** = Mode

LIST-I		LIST-II	
A.	$\beta_2 < 3$	I.	Positively skewed
B.	$\beta_2 > 3$	II.	Negatively skewed
C.	$M < Md < Mo$	III.	Platykurtic
D.	$M > Md > Mo$	IV.	Leptokurtic

Choose the **correct** answer from the options given below:

1. A-III, B-I, C-II, D-IV
2. A-I, B-IV, C-III, D-II
3. A-III, B-IV, C-II, D-I
4. A-II, B-III, C-IV, D-I

Options :

611987133685. 1
 611987133686. 2
 611987133687. 3
 611987133688. 4

Question Number : 22 Question Id : 61198733933 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

सूची-I के साथ सूची-II का मिलान कीजिए:

सूची-I		सूची-II	
A.	$\beta_2 < 3$	I.	धनात्मक वैषम्य
B.	$\beta_2 > 3$	II.	ऋणात्मक वैषम्य
C.	$M < M_d < M_o$	III.	सपाट ककुदी
D.	$M > M_d > M_o$	IV.	तुंग ककुदी

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

1. A-III, B-I, C-II, D-IV
2. A-I, B-IV, C-III, D-II
3. A-III, B-IV, C-II, D-I
4. A-II, B-III, C-IV, D-I

Options :

611987133685. 1

611987133686. 2

611987133687. 3

611987133688. 4

Question Number : 23 Question Id : 61198733934 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let A_1, A_2 , and A_3 be three events such that $P(A_i) = \frac{1}{3}, i = 1, 2, 3, P(A_i \cap A_j) = \frac{1}{6}, 1 \leq i \neq j \leq 3$ and

$$P(A_1 \cap A_2 \cap A_3) = \frac{1}{6}$$

Then the probability that none of the events A_1, A_2, A_3 occurs equals.

1. $\frac{1}{2}$
2. $\frac{1}{4}$
3. $\frac{1}{3}$
4. $\frac{1}{6}$

Options :

611987133689. 1

611987133690. 2

611987133691. 3

611987133692. 4

Question Number : 23 Question Id : 61198733934 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो A_1, A_2 और A_3 तीन घटनाएँ हैं, इस प्रकार कि $P(A_i) = \frac{1}{3}, i = 1, 2, 3, P(A_i \cap A_j) = \frac{1}{6}, 1 \leq i \neq j \leq 3$ और

$$P(A_1 \cap A_2 \cap A_3) = \frac{1}{6}$$

तो कोई भी घटना A_1, A_2, A_3 घटित नहीं होती, इसकी प्रायिकता क्या है?

1. $\frac{1}{2}$

2. $\frac{1}{4}$

3. $\frac{1}{3}$

4. $\frac{1}{6}$

Options :

611987133689. 1

611987133690. 2

611987133691. 3

611987133692. 4

Question Number : 24 Question Id : 61198733935 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let E, F, G be pairwise independent event with $P(G) > 0$ and $P(E \cap F \cap G) = 0$. Then $P(E' \cap F' | G)$ is equal to

1. $P(E') - P(F)$

2. $P(E') + P(F)$

3. $P(E') - P(F')$

4. $P(E) - P(F')$

Options :

611987133693. 1

611987133694. 2

611987133695. 3

611987133696. 4

Question Number : 24 Question Id : 61198733935 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो E, F, G जोड़ों में स्वतंत्र घटनाएँ और $P(G) > 0$ और $P(E \cap F \cap G) = 0$ हैं, तो $P(E' \cap F' | G)$ किसके बराबर है

1. $P(E') - P(F)$

2. $P(E') + P(F)$

3. $P(E') - P(F')$

4. $P(E) - P(F')$

Options :

611987133693. 1

611987133694. 2

611987133695. 3

611987133696. 4

Question Number : 25 Question Id : 61198733936 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let A, B and C be events such that $P(A|C) = 0.05$ and $P(B|C) = 0.05$. Which of the following statements must be true?

1. $P(A \cap B | C) = (0.05)^2$

2. $P(A' \cap B' | C) \geq 0.90$

3. $P(A \cup B | C) \leq 0.05$

4. $P(A \cup B | C') \geq 0.10$

Options :

611987133697. 1

611987133698. 2

611987133699. 3

611987133700. 4

Question Number : 25 Question Id : 61198733936 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो A, B और C घटनाएँ हैं, इस प्रकार कि $P(A|B) = 0.05$ और $P(B|C) = 0.05$ हैं, तो निम्नलिखित में से कौन से कथन सत्य हैं?

1. $P(A \cap B|C) = (0.05)^2$

2. $P(A' \cap B'|C) \geq 0.90$

3. $P(A \cup B|C) \leq 0.05$

4. $P(A \cup B|C') \geq 0.10$

Options :

611987133697. 1

611987133698. 2

611987133699. 3

611987133700. 4

Question Number : 26 Question Id : 61198733937 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X and Y be two events such that $P(X|Y) = \frac{1}{2}$, $P(Y|X) = \frac{1}{3}$ and $P(X \cap Y) = \frac{1}{6}$.

Which of the following is incorrect?

1. $P(X \cup Y) = \frac{2}{3}$

2. X and Y are independent

3. $P(X^c \cap Y) = \frac{1}{6}$

4. X and Y are not independent

Options :

611987133701. 1

611987133702. 2

611987133703. 3

611987133704. 4

Question Number : 26 Question Id : 61198733937 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X और Y दो घटनाएँ, इस प्रकार कि $P(X|Y) = \frac{1}{2}$, $P(Y|X) = \frac{1}{3}$ और $P(X \cap Y) = \frac{1}{6}$ हैं,

तो निम्नलिखित में से कौन सा असत्य है?

1. $P(X \cup Y) = \frac{2}{3}$
2. X और Y स्वतंत्र हैं।
3. $P(X^c \cap Y) = \frac{1}{6}$
4. X और Y स्वतंत्र नहीं हैं।

Options :

611987133701. 1
611987133702. 2
611987133703. 3
611987133704. 4

Question Number : 27 Question Id : 61198733938 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $X_1, X_2, \dots, X_{100}$ be i.i.d $U(-0.5, 0.5)$ random variables and let $T = X_1 + X_2 + \dots + X_{100}$. Using Chebyshev's inequality. Then the $P(T^2 \geq 25)$ is

1. $\geq \frac{1}{3}$
2. $\leq \frac{1}{3}$
3. $\geq \frac{5}{6}$
4. $\leq \frac{5}{6}$

Options :

611987133705. 1
611987133706. 2
611987133707. 3
611987133708. 4

Question Number : 27 Question Id : 61198733938 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $X_1, X_2, \dots, X_{100}$, be i.i.d $U(-0.5, 0.5)$ यादृच्छिक चर हैं और मानो $T = X_1 + X_2 + \dots + X_{100}$ हैं, तो चैविशेव की असमता का उपयोग कर के, $P(T^2 \geq 25)$ का मान

1. $\geq \frac{1}{3}$

2. $\leq \frac{1}{3}$

3. $\geq \frac{5}{6}$

4. $\leq \frac{5}{6}$

Options :

611987133705. 1

611987133706. 2

611987133707. 3

611987133708. 4

Question Number : 28 Question Id : 61198733939 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $U_1, U_2, \dots, U_n$ be n urns such that urn U_K contains K white and K^2 black balls, $K=1, 2, \dots, n$.

Consider the random experiment of selecting an urn and drawing a ball out of it an random. If the probability of selecting urn U_K is proportional to $(K+1)$, then find the probability that the ball drawn is black.

1. $\frac{n+1}{n+3}$

2. $\frac{n-1}{n+3}$

3. $\frac{n+1}{n-3}$

4. $\frac{n+2}{n+5}$

Options :

611987133709. 1

611987133710. 2

611987133711. 3

611987133712. 4

Question Number : 28 Question Id : 61198733939 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $U_1, U_2, \dots, U_n$ कुंभ हैं, इस प्रकार हैं कि कुंभ U_K में K सफेद और K^2 काली गेंद हैं, यहाँ $K = 1, 2, \dots, n$ हैं। यादृच्छिक एक कुंभ का चयन करने और एक गेंद निकालने के, यादृच्छिक प्रयोग पर विचार करें। यदि कुंभ U_K के चयन की प्रायिकता $(K+1)$ के अनुपाती हैं, तो निकाली गई गेंद काली हैं, की प्रायिकता ज्ञात करें।

1. $\frac{n+1}{n+3}$

2. $\frac{n-1}{n+3}$

3. $\frac{n+1}{n-3}$

4. $\frac{n+2}{n+5}$

Options :

611987133709. 1

611987133710. 2

611987133711. 3

611987133712. 4

Question Number : 29 Question Id : 61198733940 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X and Y have the joint probability mass function

$$P(X = x, Y = y) = \begin{cases} \frac{e^{-2}}{x! (y-x)!}, & x = 0, 1, 2, \dots, y, y = 0, 1, 2, \dots \\ 0, & \text{Otherwise} \end{cases}$$

Then the value of joint moment generating function $M(t_1, t_2)$ is

1. $\exp [e^{t_2} (1 - e^{t_1}) - 2]$
2. $\exp [e^{t_2} (1 + e^{t_1}) - 2]$
3. $\exp [e^{t_2} (1 + e^{t_1}) + 2]$
4. $\exp [e^{t_2} (2 + e^{t_1}) + 2]$

Options :

611987133713. 1
611987133714. 2
611987133715. 3
611987133716. 4

Question Number : 29 Question Id : 61198733940 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X और Y का, संयुक्त प्रायिकता द्रव्यामान फलन है,

$$P(X = x, Y = y) = \begin{cases} \frac{e^{-2}}{x! (y-x)!}, & x = 0, 1, 2, \dots, y, y = 0, 1, 2, \dots \\ 0, & \text{अन्यथा} \end{cases}$$

अन्यथा तो संयुक्त आघूर्ण जनक फलन $M(t_1, t_2)$ है:-

1. $\exp [e^{t_2} (1 - e^{t_1}) - 2]$
2. $\exp [e^{t_2} (1 + e^{t_1}) - 2]$
3. $\exp [e^{t_2} (1 + e^{t_1}) + 2]$
4. $\exp [e^{t_2} (2 + e^{t_1}) + 2]$

Options :

611987133713. 1
611987133714. 2
611987133715. 3

Question Number : 30 Question Id : 61198733941 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X and Y be discrete random variables with

$$P(Y \in \{0,1\}) = 1, P(X=0) = \frac{3}{4}, P(X=1) = \frac{1}{4}, P(Y=1|X=1) = \frac{3}{4}, P(Y=0|X=0) = \frac{7}{8}.$$

Then $3P(Y=1) - P(Y=0)$ equals

1. $\frac{1}{4}$
2. $\frac{1}{6}$
3. $\frac{1}{5}$
4. $\frac{1}{8}$

Options :

611987133717. 1
611987133718. 2
611987133719. 3
611987133720. 4

Question Number : 30 Question Id : 61198733941 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X और Y असंतत यादृच्छिक चर के साथ

$$P(Y \in \{0,1\}) = 1, P(X=0) = \frac{3}{4}, P(X=1) = \frac{1}{4}, P(Y=1|X=1) = \frac{3}{4}, P(Y=0|X=0) = \frac{7}{8}$$

हैं, तो $3P(Y=1) - P(Y=0)$ बराबर हैं:-

1. $\frac{1}{4}$
2. $\frac{1}{6}$
3. $\frac{1}{5}$
4. $\frac{1}{8}$

Options :

611987133717. 1
611987133718. 2
611987133719. 3
611987133720. 4

Question Number : 31 Question Id : 61198733942 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X be a random variable with probability mass function

$$P(X = n) = \begin{cases} \frac{1}{10}, & \text{if } n = 1, 2, \dots, 10 \\ 0, & \text{otherwise} \end{cases}$$

Then the value of $E(\max\{X, 5\})$ is

1. 6.5
2. 8.5
3. 5
4. 9.5

Options :

611987133721. 1
611987133722. 2
611987133723. 3
611987133724. 4

Question Number : 31 Question Id : 61198733942 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

मान लो X एक यादृच्छिक चर हैं, जिसका द्रव्यमान फलन हैं,

$$P(X = n) = \begin{cases} \frac{1}{10}, & \text{यदि } n = 1, 2, \dots, 10 \\ 0, & \text{अन्यथा} \end{cases}$$

तो $E(\max\{X, 5\})$ का मान है:-

1. 6.5
2. 8.5
3. 5
4. 9.5

Options :

611987133721. 1
611987133722. 2
611987133723. 3
611987133724. 4

Question Number : 32 Question Id : 61198733943 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

The cumulative distribution function of a random variable X is given by

$$F(x) = \begin{cases} 0, & \text{if } x < 0 \\ \frac{1}{4} + \frac{1}{6}(4x - x^2), & \text{if } 0 \leq x < 1 \\ 1, & \text{if } x \geq 1 \end{cases}$$

Then the value of $P(X = 0 | 0 \leq X < 1)$ is

1. $\frac{1}{4}$
2. $\frac{1}{5}$
3. $\frac{1}{3}$
4. $\frac{4}{5}$

Options :

611987133725. 1
611987133726. 2
611987133727. 3
611987133728. 4

Question Number : 32 Question Id : 61198733943 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

एक यादृच्छिक चर X का, संचयी बंटन फलन दिया जाता है:-

$$F(x) = \begin{cases} 0, & \text{यदि } x < 0 \\ \frac{1}{4} + \frac{1}{6}(4x - x^2), & \text{यदि } 0 \leq x < 1 \\ 1, & \text{यदि } x \geq 1 \end{cases}$$

तो $P(X=0 | 0 \leq X < 1)$ का मान है:-

1. $\frac{1}{4}$
2. $\frac{1}{5}$
3. $\frac{1}{3}$
4. $\frac{4}{5}$

Options :

611987133725. 1
611987133726. 2
611987133727. 3
611987133728. 4

Question Number : 33 Question Id : 61198733944 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X be a continuous random variable with probability density function

$$f(x) = \frac{1}{2}e^{-|x-1|}, -\infty < x < \infty$$

Then the value of $P(1 < |X| < 2)$ is

1. $\frac{1}{2}(e^{-1} + e)(e^{-1} - e^{-2})$

2. $\frac{1}{2}(e^{-1} - e)(e^{-2} + e^{-3})$

3. $\frac{1}{2}(e^{-1} - e)(e^{-1} + e^{-2})$

4. $\frac{1}{2}(e^{-1} + e)(e^{-1} + e^{-2})$

Options :

611987133729. 1

611987133730. 2

611987133731. 3

611987133732. 4

Question Number : 33 Question Id : 61198733944 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X एक संतत यादृच्छिक फलन हैं, जिसका प्रायिकता द्रव्यमान फलन हैं:-

$$f(x) = \frac{1}{2}e^{-|x-1|}, -\infty < x < \infty$$

तो $P(1 < |X| < 2)$ का मान हैं:-

1. $\frac{1}{2}(e^{-1} + e)(e^{-1} - e^{-2})$

2. $\frac{1}{2}(e^{-1} - e)(e^{-2} + e^{-3})$

3. $\frac{1}{2}(e^{-1} - e)(e^{-1} + e^{-2})$

4. $\frac{1}{2}(e^{-1} + e)(e^{-1} + e^{-2})$

Options :

- 611987133729. 1
- 611987133730. 2
- 611987133731. 3
- 611987133732. 4

Question Number : 34 Question Id : 61198733945 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Suppose that the random variable X has moment generating function $M(t) = \frac{e^{at}}{1-bt^2}, -1 < t < 1$. It is found that the mean and variance of X are 3 and 2 respectively, then the value of $a + b$ is

- 1. 1
- 2. 0
- 3. 2
- 4. 4

Options :

- 611987133733. 1
- 611987133734. 2
- 611987133735. 3
- 611987133736. 4

Question Number : 34 Question Id : 61198733945 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो यादृच्छिक चर X , जिसका आघूर्ण जनक फलन $M(t) = \frac{e^{at}}{1-bt^2}, -1 < t < 1$ है यह पाया गया कि X का माध्य और प्रसरण क्रमशः 3 और 2 है, तो $a + b$ का मान होगा

- 1. 1
- 2. 0
- 3. 2
- 4. 4

Options :

- 611987133733. 1
- 611987133734. 2
- 611987133735. 3
- 611987133736. 4

Question Number : 35 Question Id : 61198733946 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let the distribution function of X be $F_X(x) = 1 - \sum_{k=0}^3 \frac{x^k e^{-x}}{k!}$, $x > 0$, then the density function of X for $x > 0$ is

1. e^{-x}
2. $\frac{x^2 e^{-x}}{2}$
3. $\frac{x^3 e^{-x}}{6}$
4. $\frac{x^2 e^{-x}}{6}$

Options :

611987133737. 1
611987133738. 2
611987133739. 3
611987133740. 4

Question Number : 35 Question Id : 61198733946 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $x > 0$ के लिए, X का बंटन फलन $F_X(x) = 1 - \sum_{k=0}^3 \frac{x^k e^{-x}}{k!}$, $x > 0$, हैं तो X का घनत्व फलन होगा

1. e^{-x}
2. $\frac{x^2 e^{-x}}{2}$
3. $\frac{x^3 e^{-x}}{6}$
4. $\frac{x^2 e^{-x}}{6}$

Options :

611987133737. 1
611987133738. 2

611987133739. 3

611987133740. 4

Question Number : 36 Question Id : 61198733947 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In a binomial distribution $B\left(n, \frac{1}{4}\right)$. If the probability of at least one success is greater than or equal to $\frac{9}{10}$ then n is greater than

1. $\frac{1}{\log_{10} 4 - \log_{10} 3}$

2. $\frac{1}{\log_{10} 4 + \log_{10} 3}$

3. $\frac{9}{\log_{10} 4 - \log_{10} 3}$

4. $\frac{4}{\log_{10} 4 - \log_{10} 3}$

Options :

611987133741. 1

611987133742. 2

611987133743. 3

611987133744. 4

Question Number : 36 Question Id : 61198733947 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

एक द्विपद बंटन $B\left(n, \frac{1}{4}\right)$ में, यदि कम से कम एक सफलता की प्रायिकता $\frac{9}{10}$ से अधिक है और या उसके

$\frac{9}{10}$ बराबर है, तो n किस से बड़ा है?

1. $\frac{1}{\log_{10} 4 - \log_{10} 3}$

2. $\frac{1}{\log_{10} 4 + \log_{10} 3}$

3. $\frac{9}{\log_{10} 4 - \log_{10} 3}$

4. $\frac{4}{\log_{10} 4 - \log_{10} 3}$

Options :

611987133741. 1

611987133742. 2

611987133743. 3

611987133744. 4

Question Number : 37 Question Id : 61198733948 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X and Y be i.i.d $U(0, 1)$ random variables, then the value of $P\left(\frac{1}{4} \leq X^2 + Y^2 \leq 1\right)$ is

1. $\frac{2\pi}{15}$

2. $\frac{3\pi}{19}$

3. $\frac{3\pi}{16}$

4. $\frac{5\pi}{16}$

Options :

611987133745. 1

611987133746. 2

611987133747. 3

611987133748. 4

Question Number : 37 Question Id : 61198733948 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X और Y स्वतंत्र एवं समरूपी $U(0, 1)$ यादृच्छिक चर हैं, तो $P\left(\frac{1}{4} \leq X^2 + Y^2 \leq 1\right)$ का मान है:-

1. $\frac{2\pi}{15}$

2. $\frac{3\pi}{19}$

3. $\frac{3\pi}{16}$

4. $\frac{5\pi}{16}$

Options :

611987133745. 1

611987133746. 2

611987133747. 3

611987133748. 4

Question Number : 38 Question Id : 61198733949 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X_1 and X_2 be two independent observations from a normal distribution with mean and variance

1. If $E [C | X_1 - X_2] = 1$, then the value of C is

1. $\frac{\sqrt{\pi}}{2}$

2. $\frac{1}{\sqrt{\pi}}$

3. $\frac{\sqrt{2\pi}}{4}$

4. $\frac{2}{\sqrt{\pi}}$

Options :

611987133749. 1

611987133750. 2

611987133751. 3

611987133752. 4

Question Number : 38 Question Id : 61198733949 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X_1 और X_2 , एक प्रसामान्य फलन से, माध्य और प्रसरण 1 के साथ दो स्वतंत्र प्रेक्षण हैं। यदि $E [C | X_1 - X_2] = 1$ हैं, तो C का मान है:-

1. $\frac{\sqrt{\pi}}{2}$

2. $\frac{1}{\sqrt{\pi}}$

3. $\frac{\sqrt{2\pi}}{4}$

4. $\frac{2}{\sqrt{\pi}}$

Options :

611987133749. 1

611987133750. 2

611987133751. 3

Question Number : 39 Question Id : 61198733950 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X, Y and Z be independent Poisson random variables with $E(X) = 3$, $E(Y) = 1$ and $E(Z) = 4$. Then $P(X + Y + Z \leq 1)$ is

1. $12e^{-12}$

2. $9e^{-8}$

3. $\frac{13}{12}e^{-\frac{1}{12}}$

4. $9e^{-\frac{1}{8}}$

Options :

611987133753. 1

611987133754. 2

611987133755. 3

611987133756. 4

Question Number : 39 Question Id : 61198733950 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X, Y और Z स्वतंत्र प्वासों यादृच्छिक चर हैं, जिसमें $E(X) = 3$, $E(Y) = 1$ और $E(Z) = 4$ हैं। तो $P(X + Y + Z \leq 1)$ है:-

1. $12e^{-12}$

2. $9e^{-8}$

3. $\frac{13}{12}e^{-\frac{1}{12}}$

4. $9e^{-\frac{1}{8}}$

Options :

611987133753. 1

611987133754. 2

611987133755. 3

611987133756. 4

Question Number : 40 Question Id : 61198733951 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

If X is a $U(0, 1)$ random variable, then $P\left(\min(X, 1 - X) \leq \frac{1}{4}\right)$ is

1. $\frac{3}{4}$
2. $\frac{1}{2}$
3. $\frac{5}{7}$
4. $\frac{3}{5}$

Options :

611987133757. 1
611987133758. 2
611987133759. 3
611987133760. 4

Question Number : 40 Question Id : 61198733951 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

यदि X , एक $U(0, 1)$ यादृच्छिक चर हैं, तो $P\left(\min(X, 1 - X) \leq \frac{1}{4}\right)$ हैं

1. $\frac{3}{4}$
2. $\frac{1}{2}$
3. $\frac{5}{7}$
4. $\frac{3}{5}$

Options :

611987133757. 1
611987133758. 2
611987133759. 3

Question Number : 41 Question Id : 61198733952 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If X has F-distribution with (25,10) degree of freedom, then the mean of $\frac{1}{X}$ is

1. $\frac{5}{24}$
2. $\frac{25}{23}$
3. $\frac{23}{25}$
4. $\frac{8}{10}$

Options :

611987133761. 1
611987133762. 2
611987133763. 3
611987133764. 4

Question Number : 41 Question Id : 61198733952 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि X की, F बंटन (वितरण) के साथ, स्वातंत्र्य कोटि (25, 10) हैं, तो $\frac{1}{X}$ का माध्य है

1. $\frac{5}{24}$

2. $\frac{25}{23}$

3. $\frac{23}{25}$

4. $\frac{8}{10}$

Options :

611987133761. 1

611987133762. 2

611987133763. 3

611987133764. 4

Question Number : 42 Question Id : 61198733953 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X be a Gamma $(4, \lambda)$, $\lambda > 0$, random variable, then find the value of λ that minimize $E(Y)$,

where $Y = X + \frac{3}{4X}$.

1. $\lambda = 5$

2. $\lambda = 3$

3. $\lambda = 4$

4. $\lambda = 2$

Options :

611987133765. 1

611987133766. 2

611987133767. 3

611987133768. 4

Question Number : 42 Question Id : 61198733953 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X , एक Gamma $(4, \lambda)$, $\lambda > 0$ यादृच्छिक चर हैं, तो λ का वह मान ज्ञात करें, जो $E(Y)$ का

न्यूनतमीकरण करता है, यहाँ $Y = X + \frac{3}{4X}$ हैं।

1. $\lambda = 5$
2. $\lambda = 3$
3. $\lambda = 4$
4. $\lambda = 2$

Options :

611987133765. 1
611987133766. 2
611987133767. 3
611987133768. 4

Question Number : 43 Question Id : 61198733954 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following statement: If $X \sim F(n_1, n_2)$ distribution then

- A. $Z = \frac{1}{X} \sim F(n_2, n_1)$
- B. $\frac{n_2}{n_1} \frac{Y}{1-Y} \sim F(n_1, n_2)$ where Y is Beta distribution
- C. $\left(1 + \frac{n_1}{n_2} X\right) \sim \text{Beta}$
- D. $\frac{1}{X} \sim F\left(\frac{1}{n_1}, \frac{1}{n_2}\right)$

Choose the **correct** answer from the options given below:

1. B, D Only
2. A, D Only
3. A, B Only
4. C Only

Options :

611987133769. 1
611987133770. 2
611987133771. 3
611987133772. 4

Question Number : 43 Question Id : 61198733954 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

निम्नलिखित कथनों पर विचार करें:- यदि $X \sim F(n_1, n_2)$ बंटन हैं, तो

A. $Z = \frac{1}{X} \sim F(n_2, n_1)$

B. $\frac{n_2}{n_1} \frac{Y}{1-Y} \sim F(n_1, n_2)$ यहाँ Y बीटा बंटित हैं

C. $\left(1 + \frac{n_1}{n_2} X\right) \sim \text{Beta}$

D. $\frac{1}{X} \sim F\left(\frac{1}{n_1}, \frac{1}{n_2}\right)$

नीचे दिए गए विकल्पों में से **सही** उत्तर चुनें:

1. B, D केवल
2. A, D केवल
3. A, B केवल
4. C केवल

Options :

611987133769. 1

611987133770. 2

611987133771. 3

611987133772. 4

Question Number : 44 Question Id : 61198733955 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

Let X_1, X_2 be a independent random sample from $N(0,1)$

LIST-I		LIST-II	
A.	$\frac{(X_2 - X_1)^2}{2}$	I.	$\beta_1\left(\frac{1}{2}, \frac{1}{2}\right)$
B.	$(X_1 + X_2)^2 / (X_2 - X_1)^2$	II.	Standard Cauchy
C.	$(X_1 + X_2) / \sqrt{(X_2 - X_1)^2}$	III.	$F(1,1)$
D.	$\frac{X_2^2}{X_1^2 + X_2^2}$	IV.	$\chi_{(1)}^2$

Choose the **correct** answer from the options given below:

1. A-IV, B-III, C-II, D-I
2. A-I, B-II, C-III, D-IV
3. A-IV, B-II, C-III, D-I
4. A-III, B-IV, C-II, D-I

Options :

611987133773. 1
 611987133774. 2
 611987133775. 3
 611987133776. 4

Question Number : 44 Question Id : 61198733955 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

सूची-I के साथ सूची-II का मिलान कीजिए:

मान लो $N(0, 1)$ से, X_1, X_2 स्वतंत्र यादृच्छिक प्रतिदर्श हैं।

LIST-I		LIST-II	
A.	$\frac{(X_2 - X_1)^2}{2}$	I.	$\beta_1\left(\frac{1}{2}, \frac{1}{2}\right)$
B.	$(X_1 + X_2)^2 / (X_2 - X_1)^2$	II.	Standard Cauchy
C.	$(X_1 + X_2) / \sqrt{(X_2 - X_1)^2}$	III.	F(1,1)
D.	$\frac{X_2^2}{X_1^2 + X_2^2}$	IV.	$\chi_{(1)}^2$

नीचे दिए गए विकल्पों में से सही उत्तर का चयन कीजिए :

1. A-IV, B-III, C-II, D-I
2. A-I, B-II, C-III, D-IV
3. A-IV, B-II, C-III, D-I
4. A-III, B-IV, C-II, D-I

Options :

611987133773. 1
611987133774. 2
611987133775. 3
611987133776. 4

Question Number : 45 Question Id : 61198733956 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X be a continuous random variable with density function $f(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}, -\infty < x < \infty$,

then $E[X | X \geq 0]$ is

1. $\frac{1}{2}$
2. $\sqrt{\frac{2}{\pi}}$
3. $\frac{1}{\sqrt{(2\pi)}}$
4. 1

Options :

611987133777. 1
611987133778. 2
611987133779. 3
611987133780. 4

Question Number : 45 Question Id : 61198733956 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X एक संतत यादृच्छिक चर हैं, जिसका घनत्व फलन $f(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}, -\infty < x < \infty$ हैं तो

$E[X | X \geq 0]$ का मान होगा।

1. $\frac{1}{2}$
2. $\sqrt{\frac{2}{\pi}}$
3. $\frac{1}{\sqrt{(2\pi)}}$
4. 1

Options :

611987133777. 1
611987133778. 2

611987133779. 3

611987133780. 4

Question Number : 46 Question Id : 61198733957 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X has gamma distribution with parameter (α, θ) and given that $E(X) = 2 \text{ Var } (X)$, $M_X(1) = 32$.

Then the value of $E(X)$ is

1. $\frac{1}{5}$

2. $\frac{1}{2}$

3. 1

4. $\frac{5}{2}$

Options :

611987133781. 1

611987133782. 2

611987133783. 3

611987133784. 4

Question Number : 46 Question Id : 61198733957 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X का प्राचल (α, θ) के साथ, गामा बंटन हैं और दिया गया हैं कि $E(X) = 2 \text{ Var } (X)$, $M_X(1)=32$ हैं।

तो $E(X)$ का मान हैं:-

1. $\frac{1}{5}$

2. $\frac{1}{2}$

3. 1

4. $\frac{5}{2}$

Options :

611987133781. 1

611987133782. 2

611987133783. 3

611987133784. 4

Question Number : 47 Question Id : 61198733958 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A box contain 10 white and 15 black marbles. Let X denote the number of white marbles in a selection of 10 marbles selected at random and without replacement. Find $\frac{Var(X)}{E(X)}$

1. $\frac{2}{8}$

2. $\frac{3}{8}$

3. $\frac{3}{16}$

4. $\frac{1}{8}$

Options :

611987133785. 1

611987133786. 2

611987133787. 3

611987133788. 4

Question Number : 47 Question Id : 61198733958 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

एक बाक्स में 10 सफेद और 15 काले मार्बल (संगमरमर) हैं। मान लो X सफेद मार्बल की संख्या को दर्शाता है। 10 मार्बलों के चयन में, जिन्हें बिना प्रतिस्थापन के यादृच्छिक चयित किया जाता है, $\frac{Var(X)}{E(X)}$ निकालिए।

1. $\frac{2}{8}$
2. $\frac{3}{8}$
3. $\frac{3}{16}$
4. $\frac{1}{8}$

Options :

611987133785. 1
611987133786. 2
611987133787. 3
611987133788. 4

Question Number : 48 Question Id : 61198733959 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

An analysis of auto accidents shows that one in four accidents results in an insurance claim. In a series of independent accidents, find the probability that the first accident resulting in an insurance claim is one of the first 3 accidents

1. 0.50
2. 0.52
3. 0.54
4. 0.58

Options :

611987133789. 1
611987133790. 2
611987133791. 3
611987133792. 4

Question Number : 48 Question Id : 61198733959 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

स्वदुर्घटनाओं का विश्लेषण दर्शाता है कि चार दुर्घटनाओं में से एक का परिणाम, "बीमा-माँग" में होता है। स्वतंत्र दुर्घटनाओं की एक श्रेणी में, प्रथम तीन घटनाओं में से एक, "बीमा-माँग" के परिणाम वाली दुर्घटनाओं की प्रथम दुर्घटना है, की प्रायिकता ज्ञात करो।

1. 0.50
2. 0.52
3. 0.54
4. 0.58

Options :

611987133789. 1
611987133790. 2
611987133791. 3
611987133792. 4

Question Number : 49 Question Id : 61198733960 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X and Y be independent exponentially distributed random variables with mean $\frac{1}{4}$ and $\frac{1}{6}$ respectively. Then find the value of $E(Z)$, where $Z = \min\{X, Y\}$.

1. 0.2
2. 0.1
3. 0.3
4. 0.5

Options :

611987133793. 1
611987133794. 2
611987133795. 3
611987133796. 4

Question Number : 49 Question Id : 61198733960 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X और Y स्वतंत्र चरघातांकी बंटित यादृच्छिक चर हैं, जिनके माध्य क्रमशः $\frac{1}{4}$ और $\frac{1}{6}$ हैं। तो $E(Z)$

का मान ज्ञात कीजिए, यहाँ $Z = \min \{X, Y\}$.

1. 0.2
2. 0.1
3. 0.3
4. 0.5

Options :

611987133793. 1
611987133794. 2
611987133795. 3
611987133796. 4

Question Number : 50 Question Id : 61198733961 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In a colony all families have at least one child. The probability that a randomly chosen family from this colony has exactly K children is $(0.5)^K$, $K=1,2,\dots$. A child is either a male or a female with equal probability. Then find the probability that such a family consists of at least one male child and at least one female child.

1. $\frac{1}{3}$
2. $\frac{2}{3}$
3. $\frac{1}{4}$
4. $\frac{1}{6}$

Options :

611987133797. 1
611987133798. 2
611987133799. 3
611987133800. 4

Question Number : 50 Question Id : 61198733961 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No

Option Orientation : Vertical

एक बस्ती में, सभी परिवारों में कम से कम एक संतान हैं। इस बस्ती में से, यादृच्छिक चुने गए एक परिवार में K संतान हैं, की प्रायिकता $(0.5)^K$ है, $K=1,2,\dots$ हैं। संतान का एक लड़का अर्थात एक लड़की होने की प्रायिकता समान हैं। ऐसे एक परिवार में, कम से कम एक लड़का और कम से कम एक लड़की होने की प्रायिकता ज्ञात कीजिए?

1. $\frac{1}{3}$
2. $\frac{2}{3}$
3. $\frac{1}{4}$
4. $\frac{1}{6}$

Options :

611987133797. 1
611987133798. 2
611987133799. 3
611987133800. 4

Question Number : 51 Question Id : 61198733962 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X and Y be identically distributed independent random variables such that the moment generating function of $X+Y$ is

$M(t) = 0.09e^{-2t} + 0.24e^{-t} + 0.34 + 0.24e^t + 0.09e^{2t}$, $-\infty < t < \infty$. Then the value of $P(X \leq 0)$ is

1. 0.33
2. 0.70
3. 0.34
4. 0.67

Options :

611987133801. 1
611987133802. 2
611987133803. 3
611987133804. 4

Question Number : 51 Question Id : 61198733962 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X और Y , समान रूप से बँटित स्वतंत्र यादृच्छिक चर, इस प्रकार हैं कि $X+Y$ का आघूर्ण जनक फलन है:-

$M(t) = 0.09e^{-2t} + 0.24e^{-t} + 0.34 + 0.24e^t + 0.09e^{2t}, -\infty < t < \infty$ है, तो $P(X \leq 0)$ का मान

1. 0.33
2. 0.70
3. 0.34
4. 0.67

Options :

611987133801. 1
611987133802. 2
611987133803. 3
611987133804. 4

Question Number : 52 Question Id : 61198733963 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The coefficient of correlation between random variable X and Y is $\frac{1}{3}$ and $\sigma_X^2 = a, \sigma_Y^2 = 4a$.

The random variable Z is defined to be $Z = 3X - 4Y$, and it is found that $\sigma_Z^2 = 114$, then the value of 'a' is

1. 2
2. 4
3. 3
4. 5

Options :

611987133805. 1
611987133806. 2
611987133807. 3
611987133808. 4

Question Number : 52 Question Id : 61198733963 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

दो यादृच्छिक चरों X और Y के बीच सहसंबंध गुणांक $\frac{1}{3}$ हैं और $\sigma_X^2 = a, \sigma_Y^2 = 4a$ हैं। यादृच्छिक चर Z , परिभाषित होता है, $Z = 3X - 4Y$ और यह पाया गया कि $\sigma_Z^2 = 114$ हैं, तो 'a' का मान होगा

1. 2
2. 4
3. 3
4. 5

Options :

611987133805. 1
 611987133806. 2
 611987133807. 3
 611987133808. 4

Question Number : 53 Question Id : 61198733964 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let the random variables X_1 and X_2 have joint density function

$$f(x_1, x_2) = \begin{cases} \frac{x_1 e^{-x_1 x_2}}{2}, & \text{if } 1 < x_1 < 3, \quad x_2 > 0 \\ 0, & \text{otherwise} \end{cases}$$

Then the value of covariance between X_1 and X_2 is

1. $1 + \ln(3)$
2. $1 - \ln(3)$
3. $1 - \ln(2)$
4. $1 + \ln(2)$

Options :

611987133809. 1
 611987133810. 2
 611987133811. 3
 611987133812. 4

Question Number : 53 Question Id : 61198733964 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो यादृच्छिक चर X_1 और X_2 का संयुक्त घनत्व फलन

$$f(x_1, x_2) = \begin{cases} \frac{x_1 e^{-x_1 x_2}}{2}, & \text{यदि } 1 < x_1 < 3, \quad x_2 > 0 \\ 0, & \text{अन्यथा} \end{cases}$$

तो X_1 और X_2 के बीच सहप्रसरण हैं:-

1. $1 + \ln(3)$
2. $1 - \ln(3)$
3. $1 - \ln(2)$
4. $1 + \ln(2)$

Options :

611987133809. 1
611987133810. 2
611987133811. 3
611987133812. 4

Question Number : 54 Question Id : 61198733965 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In a partially destroyed laboratory record of an analysis of correlation data the following results only are eligible:

Variance of $X = 9$

Regression equation : $8X - 10Y + 66 = 0$, $40X - 18Y = 214$.

Then find the value of standard deviation of Y

1. 3
2. 2
3. 5
4. 4

Options :

611987133813. 1
611987133814. 2
611987133815. 3
611987133816. 4

Question Number : 54 Question Id : 61198733965 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

आंशिक रूप से नष्ट हुए, प्रयोगशाला रिकार्ड के सहसंबंध डाटा के, एक विश्लेषण में केवल निम्नलिखित परिणाम स्पष्ट हैं (पढ़े जा सकते हैं)

X का प्रसरण = 9

समाश्रयण समीकरण = $8X - 10Y + 66 = 0$, $40X - 18Y = 214$ है।
तो Y के मानक विचलन का मान निकालिए?

1. 3
2. 2
3. 5
4. 4

Options :

611987133813. 1
611987133814. 2
611987133815. 3
611987133816. 4

Question Number : 55 Question Id : 61198733966 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Suppose observations on the pair (X,Y) are

X:	1	7	5	9	11	3
Y:	20	68	58	70	181	37

Let r_p and r_s respectively, denote the Pearson's and Spearman's rank correlation coefficient between X and Y on the above data. Then which of the following is true?

1. $r_p = 1, r_s = 1$
2. $r_p = 1, 0 < r_s < 1$
3. $0 < r_p < 1, r_s = 1$
4. $0 < r_p < 1, 0 < r_s < 1$

Options :

611987133817. 1

611987133818. 2

611987133819. 3

611987133820. 4

Question Number : 55 Question Id : 61198733966 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

युग्म (X,Y) पर, मानो प्रेक्षण हैं:-

X:	1	7	5	9	11	3
Y:	20	68	58	70	181	37

मान लो r_p और r_s क्रमशः पियरसन और स्पियर मैन के X और Y के बीच, ऊपर के डाटा पर कोटि सहसंबंध गुणांक को दर्शाते हैं। तो निम्नलिखित में से क्या सत्य हैं?

1. $r_p = 1, r_s = 1$
2. $r_p = 1, 0 < r_s < 1$
3. $0 < r_p < 1, r_s = 1$
4. $0 < r_p < 1, 0 < r_s < 1$

Options :

611987133817. 1

611987133818. 2

611987133819. 3

611987133820. 4

Question Number : 56 Question Id : 61198733967 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

X and Y are random variables with correlation coefficient 0.65 and with $E(X) = \text{Var}(X) = 4$ and $E(Y) = \text{Var}(Y) = 3$. Find $\text{Var}(X + 5Y)$

1. 79
2. $79 + \sqrt{3}$
3. $79 + 3\sqrt{3}$
4. $79 + 13\sqrt{3}$

Options :

- 611987133821. 1
- 611987133822. 2
- 611987133823. 3
- 611987133824. 4

Question Number : 56 Question Id : 61198733967 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

X और Y, सहसंबंध गुणांक 0.65, $E(X) = \text{Var}(X) = 4$ और $E(Y) = \text{Var}(Y) = 3$, के साथ, यादृच्छिक चर हैं।
तो $\text{Var}(X + 5Y)$ ज्ञात कीजिए।

- 1. 79
- 2. $79 + \sqrt{3}$
- 3. $79 + 3\sqrt{3}$
- 4. $79 + 13\sqrt{3}$

Options :

- 611987133821. 1
- 611987133822. 2
- 611987133823. 3
- 611987133824. 4

Question Number : 57 Question Id : 61198733968 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The time T , that a manufacturing system is out of operation has cumulative distribution function

$$F(t) = \begin{cases} 1 - \left(\frac{2}{t}\right)^2, & t > 2 \\ 0, & \text{otherwise} \end{cases}$$

The resulting cost to the company is $Y = T^2$, then the density function of Y for $y > 4$ is

1. $\frac{4}{y^2}$

2. $\frac{8}{y^{\frac{3}{2}}}$

3. $\frac{8}{y^3}$

4. $\frac{16}{y}$

Options :

611987133825. 1

611987133826. 2

611987133827. 3

611987133828. 4

Question Number : 57 Question Id : 61198733968 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

समय T जितने समय के लिए, एक कारखाना प्रचालन में नहीं है (कार्य नहीं कर रहा), का संचयी बंटन फलन है:-

$$F(t) = \begin{cases} 1 - \left(\frac{2}{t}\right)^2, & t > 2 \\ 0, & \text{अन्यथा} \end{cases}$$

यदि $Y = T^2$ कम्पनी को परिणाम मूल्य पड़ता है तो Y का घनत्व फलन $y > 4$ के लिए होगा

1. $\frac{4}{y^2}$

2. $\frac{8}{y^2}$

3. $\frac{8}{y^3}$

4. $\frac{16}{y}$

Options :

611987133825. 1
611987133826. 2
611987133827. 3
611987133828. 4

Question Number : 58 Question Id : 61198733969 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the moment generating function for the random variable X is $M_X(t) = \frac{1}{1+t}$, find the third moment of X about the point $X=2$

1. $\frac{1}{3}$

2. $\frac{2}{3}$

3. $\frac{3}{2}$

4. -38

Options :

611987133829. 1
611987133830. 2
611987133831. 3
611987133832. 4

Question Number : 58 Question Id : 61198733969 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि यादृच्छिक चर X के आघूर्ण जनक फलन $M_X(t) = \frac{1}{1+t}$ हैं, तो बिंदु $X=2$ के चारों ओर X का तृतीय आघूर्ण ज्ञात कीजिए

1. $\frac{1}{3}$
2. $\frac{2}{3}$
3. $\frac{3}{2}$
4. -38

Options :

611987133829. 1
611987133830. 2
611987133831. 3
611987133832. 4

Question Number : 59 Question Id : 61198733970 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If X_i takes only two values i^α and $-i^\alpha$ with equal probability, then the weak law of large number can be applied to independent variables $X_1, X_2, \dots, X_n$. If

1. $\alpha = \frac{1}{2}$

2. $\alpha < \frac{1}{2}$

3. $\alpha > \frac{1}{2}$

4. $\alpha > \frac{1}{3}$

Options :

611987133833. 1

611987133834. 2

611987133835. 3

611987133836. 4

Question Number : 59 Question Id : 61198733970 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि X_i केवल दो मान i^α और $-i^\alpha$, समान प्रायिकता के साथ प्राप्त करता है तो स्वतंत्र चरों $X_1, X_2, \dots, X_n$ पर बृहत् संख्याओं का दुर्बल नियम आरोपित किया जा सकता है यदि

1. $\alpha = \frac{1}{2}$

2. $\alpha < \frac{1}{2}$

3. $\alpha > \frac{1}{2}$

4. $\alpha > \frac{1}{3}$

Options :

611987133833. 1

611987133834. 2

611987133835. 3

611987133836. 4

Question Number : 60 Question Id : 61198733971 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $\{X_n\}$, $n \geq 1$ be a sequence of i.i.d normal random variable with mean 6 and variance 1. Then

$$\lim_{n \rightarrow \infty} P \left[\frac{1}{n} \sum_{i=1}^n X_i > 6.006 \right] \text{ is equal to}$$

1. 0
2. 0.25
3. 0.50
4. 0.12

Options :

611987133837. 1
611987133838. 2
611987133839. 3
611987133840. 4

Question Number : 60 Question Id : 61198733971 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $\{X_n\}$, $n \geq 1$, स्वतंत्र एवं समरूपी प्रसामान्य यादृच्छिक चरों की, माध्य 6 और प्रसरण 1 के साथ, एक

श्रेणी हैं। तो $\lim_{n \rightarrow \infty} P \left[\frac{1}{n} \sum_{i=1}^n X_i > 6.006 \right]$ बराबर है

1. 0
2. 0.25
3. 0.50
4. 0.12

Options :

611987133837. 1
611987133838. 2
611987133839. 3
611987133840. 4

Question Number : 61 Question Id : 61198733972 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $\{X_n\}$, $n \geq 1$ be a sequence of i.i.d random variables such that $E(X_i) = 1$ and $\text{Var}(X_i) = 1$, $i = 1, 2, \dots, n$.

Then the approximate distribution of $\frac{1}{\sqrt{n}} \sum_{i=1}^n (X_{2i} - X_{2i-1})$, for large n is

1. $N(0, 1)$
2. $N(0, 2)$
3. $N(0, 5)$
4. $N(0, 0.25)$

Options :

611987133841. 1
611987133842. 2
611987133843. 3
611987133844. 4

Question Number : 61 Question Id : 61198733972 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $\{X_n\}$, $n \geq 1$ स्वतंत्र एवं समरूपी यादृच्छिक चरों की एक श्रणी है, जैसे कि $E(X_i) = 1$ और $\text{Var}(X_i) = 1$, $i = 1, 2, \dots, n$ हैं। तो बृहत n के लिए $\frac{1}{\sqrt{n}} \sum_{i=1}^n (X_{2i} - X_{2i-1})$, का सन्निकट बंटन है।

1. $N(0, 1)$
2. $N(0, 2)$
3. $N(0, 5)$
4. $N(0, 0.25)$

Options :

611987133841. 1
611987133842. 2
611987133843. 3
611987133844. 4

Question Number : 62 Question Id : 61198733973 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $X_1, X_2, \dots, X_n$ be a random sample from an exponential distribution with probability function

$$f(x, \theta) = \begin{cases} \theta e^{-\theta x}, & x > 0, \quad \theta > 0 \\ 0, & \text{otherwise} \end{cases}$$

Then the maximum likelihood estimator of $P(X > 10)$ is

1. $\frac{1}{\bar{X}} e^{-10}$

2. $\frac{1}{\bar{X}}$

3. $e^{\frac{10}{\bar{X}}}$

4. $e^{-\bar{X}}$

Options :

611987133845. 1

611987133846. 2

611987133847. 3

611987133848. 4

Question Number : 62 Question Id : 61198733973 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $X_1, X_2, \dots, X_n$, एक चरघांताकी बंटन से, जिसका प्रायिकता घनत्व फलन

$$f(x, \theta) = \begin{cases} \theta e^{-\theta x}, & x > 0, \quad \theta > 0 \\ 0, & \text{अन्यथा} \end{cases}$$

का यादृच्छिक प्रतिदर्श है। तो $P(X > 10)$ का अधिकतम संभावित आकलक है

1. $\frac{1}{\bar{X}} e^{-10}$

2. $\frac{1}{\bar{X}}$

3. $e^{\frac{10}{\bar{X}}}$

4. $e^{-\bar{X}}$

Options :

611987133845. 1

611987133846. 2

611987133847. 3

611987133848. 4

Question Number : 63 Question Id : 61198733974 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let the random variable $X \sim U(10, 10 + \theta)$. Based on a random sample of size 1, say X_1 , the unbiased estimator of θ^2 is

1. $\frac{X_1^2 - 10}{\theta}$

2. $3(X_1 - 10)^2$

3. $3(X_1 + 10)^2$

4. $\frac{3X_1^2 + 10}{12}$

Options :

611987133849. 1

611987133850. 2

611987133851. 3

611987133852. 4

Question Number : 63 Question Id : 61198733974 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो यादृच्छिक चर $X \sim U(10, 10 + \theta)$ आकार 1 का यादृच्छिक प्रतिदर्श जैसे X_1 , तो θ^2 का अनमिनत आकलक है:-

1. $\frac{X_1^2 - 10}{\theta}$

2. $3(X_1 - 10)^2$

3. $3(X_1 + 10)^2$

4. $\frac{3X_1^2 + 10}{12}$

Options :

611987133849. 1
611987133850. 2
611987133851. 3
611987133852. 4

Question Number : 64 Question Id : 61198733975 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $x_1, x_2, \dots, x_n$ be independent observations drawn from a population having probability mass function

$$P(X=x) = \begin{cases} 1 & \text{with probability } \theta \\ 0 & \text{with probability } 1-\theta \end{cases}$$

then the unbiased estimator of θ^2 is

1. $\left(\frac{1}{n} \sum_{i=1}^n x_i \right)^2$

2. $\frac{1}{n} \sum_{i=1}^n x_i^2$

3. $\frac{\sum_{i=1}^n x_i \left(\sum_{i=1}^n x_i - 1 \right)}{n(n-1)}$

4. $\frac{\sum_{i=1}^n x_i^2 \left(\sum_{i=1}^n x_i^2 - 1 \right)}{n(n-1)}$

Options :

611987133853. 1
611987133854. 2
611987133855. 3
611987133856. 4

Question Number : 64 Question Id : 61198733975 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि $x_1, x_2, \dots, x_n$ स्वतंत्र प्रेक्षण हैं जिन्हें एक ऐसी जनसंख्या से लिया गया है जिसका प्रायिकता द्रव्यमान फलन

$$P(X=x) = \begin{cases} 1 & \text{with probability } \theta \\ 0 & \text{with probability } 1-\theta \end{cases}$$

हैं, तो θ^2 का अनमिनत आकलक है:-

1. $\left(\frac{1}{n} \sum_{i=1}^n x_i \right)^2$

2. $\frac{1}{n} \sum_{i=1}^n x_i^2$

3. $\frac{\sum_{i=1}^n x_i \left(\sum_{i=1}^n x_i - 1 \right)}{n(n-1)}$

4. $\frac{\sum_{i=1}^n x_i^2 \left(\sum_{i=1}^n x_i^2 - 1 \right)}{n(n-1)}$

Options :

611987133853. 1

611987133854. 2

611987133855. 3

611987133856. 4

Question Number : 65 Question Id : 61198733976 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $X_1, X_2, \dots, X_n$ be a random sample from a probability mass function

$$P(X = x) = \begin{cases} (1 - \theta)\theta^x & x = 0, 1, 2, \dots, 0 \leq \theta \leq 1 \\ 0 & \text{otherwise} \end{cases}$$

then the maximum likelihood estimate of θ is

1. $\frac{\bar{X}}{1 + \bar{X}}$

2. $\frac{1}{\bar{X}}$

3. $\frac{\bar{X}}{1 - \bar{X}}$

4. $\frac{1}{1 + \bar{X}}$

Options :

611987133857. 1

611987133858. 2

611987133859. 3

611987133860. 4

Question Number : 65 Question Id : 61198733976 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $X_1, X_2, \dots, X_n$, एक प्रायिकता द्रव्यमान फलन

$$P(X = x) = \begin{cases} (1 - \theta)\theta^x & x = 0, 1, 2, \dots, 0 \leq \theta \leq 1 \\ 0 & \text{अन्यथा} \end{cases}$$

से एक यादृच्छिक प्रतिदर्श हैं। तो θ का अधिकतम संभावित आकलक हैं:-

1. $\frac{\bar{X}}{1 + \bar{X}}$

2. $\frac{1}{\bar{X}}$

3. $\frac{\bar{X}}{1 - \bar{X}}$

4. $\frac{1}{1 + \bar{X}}$

Options :

611987133857. 1

611987133858. 2

611987133859. 3

611987133860. 4

Question Number : 66 Question Id : 61198733977 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following statement(s) is/are true?

- A. Maximum likelihood estimators are unbiased
- B. Maximum likelihood estimators are consistent
- C. Maximum likelihood estimators are asymptotically normal distributed
- D. If $\hat{\theta}$ is maximum likelihood estimate (mle) of θ , then for the monotone function $g(\cdot)$, $g(\hat{\theta})$ is an mle of $g(\theta)$.

Choose the **correct** answer from the options given below:

- 1. A, B, C Only
- 2. B Only
- 3. B, C, D Only
- 4. A, B Only

Options :

611987133861. 1
611987133862. 2
611987133863. 3
611987133864. 4

Question Number : 66 Question Id : 61198733977 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

निम्नलिखित में से कौन से कथन सत्य हैं:-

- A. अधिकतम संभावित आकलक अनमिनत होते हैं।
- B. अधिकतम संभावित आकलक संतत होते हैं।
- C. अधिकतम संभावित आकलक उपगामी प्रसामान्य बंटित होते हैं।
- D. यदि $\hat{\theta}, \theta$ का अधिकतम संभावित आकलन (mle) हैं तो एकदिष्ट फलन $g(\cdot)$ के लिए, $g(\hat{\theta}), g(\theta)$ का एक mle होगा

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

- 1. A, B, C केवल
- 2. B केवल
- 3. B, C, D केवल
- 4. A, B केवल

Options :

611987133861. 1
611987133862. 2
611987133863. 3
611987133864. 4

Question Number : 67 Question Id : 61198733978 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $X_1, X_2, \dots, X_n$ be a random sample of size n from $N(\mu, 1)$ population. To test $H_0: \mu = 5$ against $H_1: \mu = 4$ the decision rule is reject H_0 if $\bar{x} \leq c$. If $\alpha = 0.05$ and $\beta = 0.10$, then the value of c (Given that $\Phi(1.28) = 0.90$) is

1. $\frac{2.56}{\sqrt{n}} + 4$

2. $\frac{2.56}{\sqrt{n}} - 4$

3. $\frac{1.28}{\sqrt{n}} + 4$

4. $\frac{1.28}{\sqrt{n}} - 4$

Options :

611987133865. 1

611987133866. 2

611987133867. 3

611987133868. 4

Question Number : 67 Question Id : 61198733978 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो $X_1, X_2, \dots, X_n$, आकार n का, जनसंख्या $N(\mu, 1)$ में से, एक यादृच्छिक प्रतिदर्श है। $H_0: \mu = 5$ प्रतिकूल $H_1: \mu = 4$ परीक्षण के लिए, निर्णय नियम है, अस्वीकार कर दे H_0 यदि $\bar{x} \leq c$ हैं। यदि $\alpha = 0.05$ और $\beta = 0.10$ हैं तो c का मान होगा (दिया गया है $\Phi(1.28) = 0.90$)

1. $\frac{2.56}{\sqrt{n}} + 4$

2. $\frac{2.56}{\sqrt{n}} - 4$

3. $\frac{1.28}{\sqrt{n}} + 4$

4. $\frac{1.28}{\sqrt{n}} - 4$

Options :

611987133865. 1

611987133866. 2

611987133867. 3

611987133868. 4

Question Number : 68 Question Id : 61198733979 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X be a single observation from the probability density function $f(x, \theta) = (\theta + 1)x^\theta$,

$0 < x < 1, \theta \in \{1, 2\}$ is unknown then the most powerful test of $\alpha = \frac{13}{49}$ for testing $H_0: \theta = 1$

against $H_1: \theta = 2$ is

1. $\left(\frac{6}{7}, 1\right)$

2. $\left(\frac{9}{2}, 1\right)$

3. $\left(\frac{8}{9}, 1\right)$

4. $\left(\frac{6}{5}, 1\right)$

Options :

611987133869. 1

611987133870. 2

611987133871. 3

611987133872. 4

Question Number : 68 Question Id : 61198733979 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X एक प्रायिकता घनत्व फलन $f(x, \theta) = (\theta + 1)x^\theta$, $0 < x < 1$, यहाँ $\theta \in \{1, 2\}$ अज्ञात हैं, में से एक एकल प्रेक्षण हैं, तो $\alpha = \frac{13}{49}$ का सबसे अधिक प्रभावशाली परीक्षण, $H_0 : \theta = 1$ प्रतिकूल (अगेन्स्ट) $H_1 : \theta = 2$ का परीक्षण करने के लिए हैं

1. $\left(\frac{6}{7}, 1\right)$

2. $\left(\frac{9}{2}, 1\right)$

3. $\left(\frac{8}{9}, 1\right)$

4. $\left(\frac{6}{5}, 1\right)$

Options :

611987133869. 1

611987133870. 2

611987133871. 3

611987133872. 4

Question Number : 69 Question Id : 61198733980 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let X be a sample observation from $U(\theta, \theta^2)$ distribution where $\theta \in \{2, 3\}$ is the unknown parameter. For testing $H_0 : \theta = 2$ against $H_1 : \theta = 3$, let α and β be the size and power, respectively, of the test that reject H_0 if and only if $X \geq 3.5$, then $(\alpha + \beta)$ is

1. $\frac{2}{3}$

2. $\frac{8}{6}$

3. $\frac{7}{6}$

4. $\frac{1}{2}$

Options :

611987133873. 1

611987133874. 2

611987133875. 3

611987133876. 4

Question Number : 69 Question Id : 61198733980 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

मान लो X , बंटन $U(\theta, \theta^2)$, यहाँ $\theta \in \{2, 3\}$ अज्ञान प्राचल हैं, में से एक प्रेक्षण हैं। $H_0 : \theta = 2$ प्रतिकूल (अगेन्स्ट) $H_1 : \theta = 3$, का परीक्षण करने के लिए, मान लो α और β परीक्षण की क्रमशः आमाप और क्षमता है जो H_0 केवल तभी अस्वीकार करता है यदि $X \geq 3.5$ हैं। तो $(\alpha + \beta)$ का मान होगा

1. $\frac{2}{3}$

2. $\frac{8}{6}$

3. $\frac{7}{6}$

4. $\frac{1}{2}$

Options :

611987133873. 1

611987133874. 2

611987133875. 3

611987133876. 4

Question Number : 70 Question Id : 61198733981 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The most powerful test given by Neyman-Pearson for testing a simple hypothesis against a simple alternative hypothesis at significance level α , is strictly unbiased if

1. $\alpha = 1$

2. $0 < \alpha < 1$

3. $0 \leq \alpha < 1$

4. $0 \leq \alpha \leq 1$

Options :

611987133877. 1

611987133878. 2

611987133879. 3

611987133880. 4

Question Number : 70 Question Id : 61198733981 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

नेमन और पियरसन द्वारा दिया गया, एक सरल वैकल्पिक परिकल्पना के प्रतिकूल एक सरल परिकल्पना, सार्थकता स्तर α पर परीक्षण के लिए, सबसे अधिक प्रभावशाली परीक्षण, दृढ़तः अनमिनत है यदि

1. $\alpha = 1$
2. $0 < \alpha < 1$
3. $0 \leq \alpha < 1$
4. $0 \leq \alpha \leq 1$

Options :

611987133877. 1

611987133878. 2

611987133879. 3

611987133880. 4

Question Number : 71 Question Id : 61198733982 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A list of 3000 voters of a ward in a city was examined for measuring the accuracy of age of individuals. A random sample of 300 names was taken with replacement which revealed that 51 citizen were shown with wrong ages. Then estimate the standard error of the total number of voters having a wrong description of age in the list.

1. 65
2. 67
3. 69
4. 66

Options :

611987133881. 1

611987133882. 2

611987133883. 3

611987133884. 4

Question Number : 71 Question Id : 61198733982 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

एक शहर में, एक वार्ड के 3000 मतदाताओं की सूची का, प्रत्येक व्यक्ति की आयु की यथार्थता को मापने के लिए, जाँच की गई। 300 नामों का, प्रतिस्थापन के साथ एक यादृच्छिक प्रतिदर्श लिया गया, जिसमें यह प्रदर्शित हुआ कि 51 नागरिकों की आयु गलत दिखाई गई थी। तो कुल मतदाताओं की संख्या, जिनकी आयु का सूची में गलत विवरण है, की मानक त्रुटि का आकलन करें

1. 65
2. 67
3. 69
4. 66

Options :

611987133881. 1
611987133882. 2
611987133883. 3
611987133884. 4

Question Number : 72 Question Id : 61198733983 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If a 2^3 factorial experiment is carried out as a Randomized Block Design with 4 blocks the number of degrees of freedom for error sum of squares is

1. 29
2. 21
3. 28
4. 20

Options :

611987133885. 1
611987133886. 2
611987133887. 3
611987133888. 4

Question Number : 72 Question Id : 61198733983 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि एक 2^3 क्रमगुणन प्रयोग को, यादृच्छिकीकृत ब्लॉक डिजाइन के रूप में, 4 ब्लॉक के साथ किया जाता है, तो वर्गों के त्रुटि योग के लिए, स्वातंत्र्य कोटि की संख्या है।

1. 29
2. 21
3. 28
4. 20

Options :

611987133885. 1
611987133886. 2
611987133887. 3
611987133888. 4

Question Number : 73 Question Id : 61198733984 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In Latin Square Design, the error degree of freedom is 30. The treatment degree of freedom for any treatment is

1. 4
2. 5
3. 6
4. 7

Options :

611987133889. 1
611987133890. 2
611987133891. 3
611987133892. 4

Question Number : 73 Question Id : 61198733984 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

लेटिन वर्ग डिजाइन में, त्रुटि स्वातंत्र्य कोटि 30 है। किसी भी उपचार के लिए उपचार (ट्रीटमेंट) स्वातंत्र्य कोटि है

1. 4
2. 5
3. 6
4. 7

Options :

611987133889. 1
611987133890. 2
611987133891. 3
611987133892. 4

Question Number : 74 Question Id : 61198733985 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which principle(s) of field experiment is/are used in a completely randomized design?

- A. Local control
- B. Replication
- C. Randomization

Choose the **correct** answer from the options given below:

- 1. A Only
- 2. A, B Only
- 3. B, C Only
- 4. A, B, C Only

Options :

611987133893. 1
611987133894. 2
611987133895. 3
611987133896. 4

Question Number : 74 Question Id : 61198733985 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

क्षेत्र-प्रयोग के, कौन से सिद्धांतों का प्रयोग, पूर्णतः यादृच्छिकीकृत डिजाइन में होता है?

- A. स्थानीय नियंत्रण
- B. प्रतिकृतीयन
- C. यादृच्छिकीकरण

नीचे दिए गए विकल्पों में से **सही** उत्तर चुनें:

1. A केवल
2. A, B केवल
3. B, C केवल
4. A, B, C केवल

Options :

- 611987133893. 1
- 611987133894. 2
- 611987133895. 3
- 611987133896. 4

Question Number : 75 Question Id : 61198733986 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If we interchange two columns of Latin square design then the new design is

1. an Latin Square Design (LSD)
2. a Completely Randomized Design but not an LSD
3. a Randomized Block Design not an LSD
4. a Balanced Incomplete Design but not an LSD

Options :

- 611987133897. 1
- 611987133898. 2
- 611987133899. 3
- 611987133900. 4

Question Number : 75 Question Id : 61198733986 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

यदि हम एक लेटिन वर्ग डिजाइन के दो स्तंभों का विनिमय कर दें तो नया डिजाइन है:-

1. एक लेटिन वर्ग डिजाइन (LSD)।
2. एक पूर्णतः यादृच्छिकीकृत डिजाइन लेकिन एक LSD नहीं है।
3. एक यादृच्छिकीकृत ब्लॉक डिजाइन, एक LSD नहीं है।
4. एक संतुलित अपूर्ण डिजाइन, एक LSD नहीं है।

Options :

611987133897. 1

611987133898. 2

611987133899. 3

611987133900. 4