National Testing Agency

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PGQP29

Group Number :	1
Group Id :	19088918
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Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	400
Is this Group for Examiner? :	No

PART A - General

Section Id :	19088956
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	19088982
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 1908892192 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the correct word that can best complete the given sentence:

A well-balanced diet can be a/an ————— for stress.

(1)   spirit   (2)   buffer
(3)   antidote   (4)   medicine

Options :

1908898701. 1

1908898702. 2

1908898703. 3

1908898704. 4

Question Number : 2 Question Id : 1908892193 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

From the choices given below, select the pair which exhibits the same relationship as the one in capitalized pair of words:

HERBS : MEDICINE

(1)   books : knowledge   (2)   sound : radio
(3)   time : watch   (4)   juice : orange

Options :

1908898705. 1

1908898706. 2

1908898707. 3

1908898708. 4

Question Number : 3 Question Id : 1908892194 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the most suitable synonym:

ADEPT

(1)   devious   (2)   wily

(3)   clumsy   (4)   dexterous

Options :

1908898709. 1

1908898710. 2

1908898711. 3

1908898712. 4

Question Number : 4 Question Id : 1908892195 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the part of the body with which the disease is associated:

Hepatitis

(1)   gall bladder   (2)   diaphragm

(3)   stomach   (4)   liver

Options :

1908898713. 1

1908898714. 2

1908898715. 3

1908898716. 4

Question Number : 5 Question Id : 1908892196 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the expression below from the options given:

ex officio

(1)   unofficial   (2)   as a result of one's status

(3)   a retired official   (4)   make public

Options :

1908898717. 1

1908898718. 2

1908898719. 3

1908898720. 4

Question Number : 6 Question Id : 1908892197 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the underlined word:

Confidence in government hospitals has <u>eroded</u> considerably in the past decade.

(1)   gradually destroyed   (2)   been reimposed

(3)   corroded   (4)   withered

Options :

1908898721. 1

1908898722. 2

1908898723. 3

1908898724. 4

Question Number : 7 Question Id : 1908892198 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the phrase below from the options given:

A person who helps others specially those who are poor or in trouble

(1)   philhellene   (2)   philadelphus

(3)   philanderer   (4)   philanthropist

Options :

1908898725. 1

1908898726. 2

1908898727. 3

1908898728. 4

Question Number : 8 Question Id : 1908892199 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the most suitable antonym:

ERRATIC

(1)   loose   (2)   faulty

(3)   regular   (4)   brave

Options :

1908898729. 1

1908898730. 2

1908898731. 3

1908898732. 4

Question Number : 9 Question Id : 1908892200 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the idiom from the options given:

A bird's-eye view

(1)   without care   (2)   within the walls

(3)   an overall view   (4)   out of place

Options :

1908898733. 1

1908898734. 2

1908898735. 3

1908898736. 4

Question Number : 10 Question Id : 1908892201 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the correct word from the answer:

Farmers know that changing winds _____ rain or drought.

(1)   bring   (2)   create

(3)   form   (4)   present

Options :

1908898737. 1

1908898738. 2

1908898739. 3

1908898740. 4

Question Number : 11 Question Id : 1908892202 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The H.C.F. (Highest Common Factor) of 3556 and 3444 is :

(1)   23   (2)   25
(3)   26   (4)   28

Options :

1908898741. 1

1908898742. 2

1908898743. 3

1908898744. 4

Question Number : 12 Question Id : 1908892203 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $a + b = 5$ and $3a + 2b = 20$, then $(3a + b)$ will be :

(1)   10   (2)   15
(3)   20   (4)   25

Options :

1908898745. 1

1908898746. 2

1908898747. 3

1908898748. 4

Question Number : 13 Question Id : 1908892204 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the sum of a number and its square is 182, what is the number?

(1)   15   (2)   26
(3)   28   (4)   None of these

Options :

1908898749. 1

1908898750. 2

1908898751. 3

1908898752. 4

Question Number : 14 Question Id : 1908892205 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

88% of 370 + 24% of 210 − ? = 118

(1)   256   (2)   258
(3)   268   (4)   358

Options :

1908898753. 1

1908898754. 2

1908898755. 3

1908898756. 4

Question Number : 15 Question Id : 1908892206 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the correct alternative based on relationship:

Tractor : Trailer : : Horse : ?
(1)   Stable   (2)   Cart
(3)   Saddle   (4)   Engine

Options :

1908898757. 1

1908898758. 2

1908898759. 3

1908898760. 4

Question Number : 16 Question Id : 1908892207 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the word which is least like the other words in the group:

(1)   Geometry   (2)   Algebra
(3)   Trigonometry   (4)   Mathematics

Options :

1908898761. 1

1908898762. 2

1908898763. 3

1908898764. 4

Question Number : 17 Question Id : 1908892208 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the number which is different from others in the group.

(1)   8314   (2)   2709
(3)   1315   (4)   2518

Options :

1908898765. 1

1908898766. 2

1908898767. 3

1908898768. 4

Question Number : 18 Question Id : 1908892209 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If PALE is coded as 2134, EARTH is coded as 41590, how is PEARL coded in that code?

(1) 29530   (2) 24153
(3) 25413   (4) 25430

Options :

1908898769. 1

1908898770. 2

1908898771. 3

1908898772. 4

Question Number : 19 Question Id : 1908892210 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Rahul told Anand, 'Yesterday I defeated the only brother of the daughter of my grandmother.' Whom did Rahul defeat?

(1) Son   (2) Father
(3) Brother   (4) Father-in-law

Options :

1908898773. 1

1908898774. 2

1908898775. 3

1908898776. 4

Question Number : 20 Question Id : 1908892211 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Arrange the given words in alphabetical order and choose the one that comes first.

(1) Science   (2) Scrutiny
(3) Scripture   (4) Scramble

Options :

1908898777. 1

1908898778. 2

1908898779. 3

1908898780. 4

Question Number : 21 Question Id : 1908892212 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If Atul finds that he is twelfth from the right in a line of boys and fourth from the left, how many boys should be added to the line such that there are 28 boys in the line?

(1)   12   (2)   13

(3)   14   (4)   20

Options :

1908898781. 1

1908898782. 2

1908898783. 3

1908898784. 4

Question Number : 22 Question Id : 1908892213 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The India Energy Outlook 2021 is a new special report from the

(1)   NITI Aayog

(2)   Ministry of Power

(3)   International Energy Agency

(4)   Ministry of New and Renewable Energy

Options :

1908898785. 1

1908898786. 2

1908898787. 3

1908898788. 4

Question Number : 23 Question Id : 1908892214 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Who among the following wrote the famous book titled 'We the people'?

(1)   T. N. Seshan   (2)   KiranBedi

(3)   Nanabhoy Palkhivala   (4)   Khushwant Singh

Options :

1908898789. 1

1908898790. 2

1908898791. 3

1908898792. 4

Question Number : 24 Question Id : 1908892215 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of following committees is related to 'Personal Data Protection'?

(1)   B. N. Srikrishna Committee   (2)   C. Rangarajan Committee

(3)   Bimal Jalan Committee   (4)   Bhurelal Committee

Options :

1908898793. 1

1908898794. 2

1908898795. 3

1908898796. 4

Question Number : 25 Question Id : 1908892216 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Galathea National Park is located in

(1) Andaman and Nicobar   (2) Lakshadweep

(3) Coromandel Coast   (4) Konkan Coast

Options :

1908898797. 1

1908898798. 2

1908898799. 3

1908898800. 4

PART B - STATISTICS

Section Id :	19088957
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	75
Number of Questions to be attempted :	75
Section Marks :	300
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	19088983
Question Shuffling Allowed :	Yes

Question Number : 26 Question Id : 1908892217 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An urn contains 10 marbles; 5 red and 5 green. Let X denote number of red marbles out of 2 marbles drawn without replacement from an urn. Then $P(X=1)$ is

(1)   1/9   (2)   2/9
(3)   1/5   (4)   5/9

Options :

1908898801. 1

1908898802. 2

1908898803. 3

1908898804. 4

Question Number : 27 Question Id : 1908892218 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X has a continuous uniform distribution on the interval from 0 to 10, then what is $\left(X+\dfrac{10}{X}>7\right)$?

(1)   3/10   (2)   31/70
(3)   39/70   (4)   7/10

Options :

1908898805. 1

1908898806. 2

1908898807. 3

1908898808. 4

Question Number : 28 Question Id : 1908892219 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X and Y be iid $U(0,1)$ then $P(X+Y<1)$ is

(1)   1   (2)   1/3

(3)   1/2   (4)   1/4

Options :

1908898809. 1

1908898810. 2

1908898811. 3

1908898812. 4

Question Number : 29 Question Id : 1908892220 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the following five observations on (X, Y): $(0, 1)$, $(1, 2)$, $(2, 3)$, $(3, 2)$, $(4, 1)$. Then, correlation coefficient is

(1)   0   (2)   1

(3)   -1   (4)   1/2

Options :

1908898813. 1

1908898814. 2

1908898815. 3

1908898816. 4

Question Number : 30 Question Id : 1908892221 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A random variable has values +2 and -2 with equal probabilities. What is the variance of $(3X - 4)$?

(1) 36   (2) 12

(3) 8   (4) 4

Options :

1908898817. 1

1908898818. 2

1908898819. 3

1908898820. 4

Question Number : 31 Question Id : 1908892222 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $X \sim Pois(4)$ and $Y \sim Pois(3)$ and are independent r.vs. then $E(X \mid X+Y=7)$ is

(1) 2   (2) 4

(3) 3/7   (4) 4/7

Options :

1908898821. 1

1908898822. 2

1908898823. 3

1908898824. 4

Question Number : 32 Question Id : 1908892223 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let A, B be events such that $P(B) = \dfrac{1}{2}$ and $P(A|B) < P(A|B^c)$, then we can conclude that

(1) $P(A) < \frac{1}{2}$

(2) $P(A|B) < \frac{1}{2}$

(3) $P(B|A) > P(B^c|A)$

(4) $P(B|A) < P(B^c|A)$

Options :

1908898825. 1

1908898826. 2

1908898827. 3

1908898828. 4

Question Number : 33 Question Id : 1908892224 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X be a continuous random variable with density $f(x) = \dfrac{e^{-|x|}}{2}, -\infty < x < \infty$. Then $P(-1 < X < 2)$

(1) $\dfrac{1}{2}(2 - e^{-1} - e^{-2})$

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

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

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

Options :

1908898829. 1

1908898830. 2

1908898831. 3

1908898832. 4

Question Number : 34 Question Id : 1908892225 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $X_1, \ldots, X_n$ are i.i.d. Bernoulli (p) random variable then $\sum_{i=1}^{n} X_i^2$ is

(1) Chi-square with a n degrees of freedom
(2) $N(np, np(1-p))$
(3) Binomial (n, p)
(4) Poisson (np)

Options :

1908898833. 1

1908898834. 2

1908898835. 3

1908898836. 4

Question Number : 35 Question Id : 1908892226 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For $i = 1, 2$. let $X_i \sim N(i, 1)$. Define the events $A_i = [0 < X_i < 4]$. Which of the following statement is correct?

(1) $P(A_1) = P(A_2)$ (2) $P(A_1) < P(A_2)$
(3) $P(A_1) > P(A_2)$ (4) None of these

Options :

1908898837. 1

1908898838. 2

1908898839. 3

1908898840. 4

Question Number : 36 Question Id : 1908892227 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\lim_{x \to \infty} \left(\dfrac{5 * x - 1}{5 * x + 1} \right)^{2x}$ equals

(1) $e^{2/5}$

(2) $e^{4/5}$

(3) $e^{-2/5}$

(4) $e^{-4/5}$

Options :

1908898841. 1

1908898842. 2

1908898843. 3

1908898844. 4

Question Number : 37 Question Id : 1908892228 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $f(x) = |x - 6|$ and $g(x) = f(f(x))$ then for all $x > 20$ the value of $g'(x)$ is

(1) 1

(2) 0

(3) -1

(4) None of these

Options :

1908898845. 1

1908898846. 2

1908898847. 3

1908898848. 4

Question Number : 38 Question Id : 1908892229 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $f(x) = \log x$ then $\dfrac{d}{dt}\displaystyle\int_{t^2}^{t^3} f(x)\,dx$

(1)   has a value 0 when t=0

(2)   has a value $9\,e^2 - 4e$ when $t = e$

(3)   has a value 0 when $t = 2$ and $t = 8/9$

(4)   none of these

Options :

1908898849. 1

1908898850. 2

1908898851. 3

1908898852. 4

Question Number : 39 Question Id : 1908892230 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let f be a function satisfying $f(x+y) = f(x) + f(y)$ and $f(1) = 2$. If $\varphi(x) = \displaystyle\int_0^x f(2t)\,dt$ then the value of $\varphi'(3)$ is

(1)   6   (2)   4

(3)   3   (4)   12

Options :

1908898853. 1

1908898854. 2

1908898855. 3

1908898856. 4

Question Number : 40 Question Id : 1908892231 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The area of the region bound by the curve $y = e^x$, $y = e^{-x}$ and $x = 0$ and $x = 2$ is given by

(1) $\left(e - \dfrac{1}{e}\right)^2$

(2) $\left(e + \dfrac{1}{e}\right)^2$

(3) $e^2 - e^{-2}$

(4) $e^2 + e^{-2}$

Options :

1908898857. 1

1908898858. 2

1908898859. 3

1908898860. 4

Question Number : 41 Question Id : 1908892232 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For $a > 2$, $\lim_{n \to \infty} \dfrac{1 + a^{1/n} + a^{2/n} + a^{3/n} + \dots + a^2}{n}$ equals to

(1) $a \log_a e$

(2) $(a-1)\log_a e$

(3) $(a^2 - 1)\log_e a$

(4) $(a^2 - 1)\log_a e$

Options :

1908898861. 1

1908898862. 2

1908898863. 3

1908898864. 4

Question Number : 42 Question Id : 1908892233 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $y = \log_{\exp(x)}(x-4)^2$, $x \neq 0,4$, then $\dfrac{dy}{dx}$ at $x = 5$ equals

(1)   -2/5   (2)   2/5

(3)   -1/5   (4)   1/5

Options :

1908898865. 1

1908898866. 2

1908898867. 3

1908898868. 4

Question Number : 43 Question Id : 1908892234 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $f(x)$ and $g(x)$ be continuous functions over the closed interval $[0,a]$ such that

$f(x) = f(a-x)$ and $g(x) + g(a-x) = 2$ then $\displaystyle\int_{0}^{a} f(x)g(x)dx$ equals

(1) $\displaystyle\int_{0}^{a} f(x)dx$ (2) $\displaystyle\int_{0}^{a} g(x)dx$

(3)   2a   (4) $\displaystyle\int_{0}^{a} (2 - g(a-x))dx$

Options :

1908898869. 1

1908898870. 2

1908898871. 3

1908898872. 4

Question Number : 44 Question Id : 1908892235 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If two events A and B such that $P(A^c) = 0.3$, $P(B) = 0.5$, $P(A \cap B) = 0.3$, then $P(B \mid A \cup B^c)$ is

(1)   0.6

(2)   0.325

(3)   0.375

(4)   0.28

Options :

1908898873. 1

1908898874. 2

1908898875. 3

1908898876. 4

Question Number : 45 Question Id : 1908892236 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\lim_{n \to \infty} \binom{n}{r} \left(\frac{m}{n}\right)^r \left(1 - \frac{m}{n}\right)^{n-r}$ equals

(1) $e^{-m} m^r$

(2) $\dfrac{m^r}{r!}$

(3) $e^{-m} \dfrac{m^r}{r!}$

(4) $e^{-r} \dfrac{r^m}{m!}$

Options :

1908898877. 1

1908898878. 2

1908898879. 3

1908898880. 4

Question Number : 46 Question Id : 1908892237 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Sum of the series $\dfrac{1}{4.5.6} + \dfrac{1}{5.6.7} + \dfrac{1}{6.7.8} + \dots$ upto ∞ is

(1) $\dfrac{1}{20}\log_e e$ (2) $\dfrac{1}{10}\log_e e$

(3) $\dfrac{1}{40}\log_e e$ (4) $\dfrac{1}{120}\log_e e$

Options :

1908898881. 1

1908898882. 2

1908898883. 3

1908898884. 4

Question Number : 47 Question Id : 1908892238 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

There are three boxes each containing 4 white and 5 black balls, and all the balls are identical except in colour.   A ball is transferred from the first box to the second box, then a balls transferred from the second box to the third, and finally a ball is transferred from third box to the first box. The probability that each box will contain exactly same number of balls as in the beginning is

(1)   14/45   (2)   1/45

(3)   1/5   (4)   1/9

Options :

1908898885. 1

1908898886. 2

1908898887. 3

1908898888. 4

Question Number : 48 Question Id : 1908892239 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Mean of n items is $\bar{x}$. If these n items are successively increased by $2, 2^2, 2^3, ..., 2^n$ then the new mean is

(1) $\bar{x} + \dfrac{2^n}{n}$

(2) $\bar{x} + \dfrac{2^n}{n} - \dfrac{2}{n}$

(3) $\bar{x} + \dfrac{2^{n-1}}{n} - \dfrac{2}{n}$

(4) $\bar{x} + \dfrac{2^{n+1}}{n} - \dfrac{2}{n}$

Options :

1908898889. 1

1908898890. 2

1908898891. 3

1908898892. 4

Question Number : 49 Question Id : 1908892240 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A die is rolled three times. Let E_1 denotes the event of getting a number larger than the previous number each time and E_2 denotes the event that the numbers forms an increasing Arithmetic Progression, then

(1) $P(E_2 | E_1) = 0.3$

(2) $P(E_2 | E_1) = 0.25$

(3) $P(E_2 | E_1) = 1$

(4) $P(E_2 | E_1) = 0.5$

Options :

1908898893. 1

1908898894. 2

1908898895. 3

1908898896. 4

Question Number : 50 Question Id : 1908892241 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X be a random variable having a p.g.f. $P_X(s) = k(2+3s+5s^2)$, then value of k

(1)   1   (2)   1/20
(3)   1/12   (4)   1/10

Options :

1908898897. 1

1908898898. 2

1908898899. 3

1908898900. 4

Question Number : 51 Question Id : 1908892242 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X have a continuous distribution symmetric about 0 and F be the distribution function of X such that $F(-1) = 0.4$ and $F(3)=0.75$ then $P(1<X<3)$ is equal to

(1)   0.25   (2)   0.20
(3)   0.15   (4)   0.05

Options :

1908898901. 1

1908898902. 2

1908898903. 3

1908898904. 4

Question Number : 52 Question Id : 1908892243 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If moment generating function of a random variable X is given by $M_X(t) = \left(\dfrac{e^{-2t} + e^{2t}}{2}\right)^2$, then

$P(|X| > 2)$ is equal to

(1) 0.25   (2) 1

(3) 0.5   (4) 0

Options :

1908898905. 1

1908898906. 2

1908898907. 3

1908898908. 4

Question Number : 53 Question Id : 1908892244 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A hotel manager is considering a new location for his hotel. The projected daily cash flow for the new location is (in Rs.)

Cash flow	1,000	3,000	7,000	9,000	10,000
Probability	0.60	0.10	0.20	0.05	?

The expected cash flow for the new location is

(1) 3,250   (2) 4,250

(3) 3,750   (4) None of the above

Options :

1908898909. 1

1908898910. 2

1908898911. 3

1908898912. 4

Question Number : 54 Question Id : 1908892245 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X denotes the number of heads by tossing 3 fair coins then $E(3-X)^2$ is

(1)   3   (2)   6

(3)   3/2   (4)   5/2

Options :

1908898913. 1

1908898914. 2

1908898915. 3

1908898916. 4

Question Number : 55 Question Id : 1908892246 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X_1 and X_2 be independent random variables with respective moment generating functions $M_{X_1}(t) = \left(\dfrac{1+e^t}{2}\right)^3$ and $M_{X_2}(t) = e^{2(e^t-1)}$, $-\infty < t < \infty$, Then the value of $P(X_1 + X_2 \geq 1)$ is equal to

(1) $\dfrac{e^{-2}}{8}$ (2) $\dfrac{e^{-2}}{4}$

(3) $1 - \dfrac{e^{-2}}{8}$ (4) $1 - \dfrac{e^{-2}}{4}$

Options :

1908898917. 1

1908898918. 2

1908898919. 3

1908898920. 4

Question Number : 56 Question Id : 1908892247 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The area bound by $y^2 = x, x = 1, x = 4$ is

(1) $\dfrac{28}{3}$ sq. units

(2) $\dfrac{28}{5}$ sq. units

(3) $\dfrac{2}{28}$ sq. units

(4) $\dfrac{5}{28}$ sq. units

Options :

1908898921. 1

1908898922. 2

1908898923. 3

1908898924. 4

Question Number : 57 Question Id : 1908892248 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If E and F are two events with $P(E) \leq P(F) > 0$ then

(1)   Occurrence of $E \Rightarrow$ Occurrence of F

(2)   Occurrence of $F \Rightarrow$ Occurrence of E

(3)   Non-occurrence of $E \Rightarrow$ Non-occurrence of F

(4)   None of the above implications hold.

Options :

1908898925. 1

1908898926. 2

1908898927. 3

1908898928. 4

Question Number : 58 Question Id : 1908892249 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The probability that exactly one of the independent events A and B occurs is equal to

(1) $P(A) + P(B) - 2P(A \cap B)$

(2) $P(A) + P(B) - P(A \cap B)$

(3) $P(A) + P(B) - 2P(\bar{A} \cap \bar{B})$

(4) $P(A) + P(B) + P(A \cap B)$

Options :

1908898929. 1

1908898930. 2

1908898931. 3

1908898932. 4

Question Number : 59 Question Id : 1908892250 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If B is a non-singular matrix and A is a square matrix such that $B^{-1}AB$ exists, then $\det(B^{-1}AB)$ is equal to

(1) $\text{Det}(A^{-1})$

(2) $\text{Det}(B^{-1})$

(3) $\text{Det}(A)$

(4) $\text{Det}(B)$

Options :

1908898933. 1

1908898934. 2

1908898935. 3

1908898936. 4

Question Number : 60 Question Id : 1908892251 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Bag I contains 3 red and 4 black balls while another Bag II contains 5 red and 6 black balls. One ball is drawn at random from one of the bags and it is found to be black. The probability that it was drawn from Bag II is

(1) $\dfrac{7}{43}$

(2) $\dfrac{13}{43}$

(3) $\dfrac{21}{43}$

(4) $\dfrac{20}{43}$

Options :

1908898937. 1

1908898938. 2

1908898939. 3

1908898940. 4

Question Number : 61 Question Id : 1908892252 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $A = \begin{pmatrix} 3 & 2 \\ 1 & 4 \end{pmatrix}$, then $A(adj\ A) =$

(1) $\begin{pmatrix} 0 & 10 \\ 10 & 0 \end{pmatrix}$

(2) $\begin{pmatrix} 10 & 0 \\ 0 & 10 \end{pmatrix}$

(3) $\begin{pmatrix} 10 & 1 \\ 1 & 10 \end{pmatrix}$

(4) $\begin{pmatrix} 1 & 10 \\ 10 & 1 \end{pmatrix}$

Options :

1908898941. 1

1908898942. 2

1908898943. 3

1908898944. 4

Question Number : 62 Question Id : 1908892253 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $f(x) = \int_{1}^{x} \sqrt{4-t^2} \, dt$, then the real roots of the equation $x - f'(x) = 0$ are

(1) ± 1 (2) ± 2

(3)   0 and 1   (4) $\pm \sqrt{2}$

Options :

1908898945. 1

1908898946. 2

1908898947. 3

1908898948. 4

Question Number : 63 Question Id : 1908892254 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If median of exponential random variable is equal to $\log_e 8$. Then its mean is equal to

(1)   1/2   (2)   2

(3)   1/3   (4)   3

Options :

1908898949. 1

1908898950. 2

1908898951. 3

1908898952. 4

Question Number : 64 Question Id : 1908892255 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X and Y are i.i.d. gamma $(\alpha, 1)$, then which of the following statement is incorrect

(1) $X+Y$ follows Gamma $(2\alpha, 1)$

(2) cX follows Gamma $(c\alpha, 1)$

(3) $\dfrac{X}{X+Y}$ follows Beta$_1(\alpha, \alpha)$

(4) $\dfrac{X}{X+Y}$ is independent of $X+Y$

Options :

1908898953. 1

1908898954. 2

1908898955. 3

1908898956. 4

Question Number : 65 Question Id : 1908892256 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X be the number of heads obtained in a sequence of 10 independent tosses of a fair coin. The fair coin is tossed again X number of times independently, and let Y be the number of heads obtained in these X number of tosses. Then $E(X+2Y)$ equals

(1)   5/2   (2)   5

(3)   15/2   (4)   10

Options :

1908898957. 1

1908898958. 2

1908898959. 3

1908898960. 4

Question Number : 66 Question Id : 1908892257 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Joint p.m.f $p(x, y)$ of two discrete r.v.'s (X, Y) is given by

$$p(x, y) = \frac{(3x + y)}{24}, \text{ for } (x, y) = (1, 1), (1, 2), (2,1), (2, 2)$$

$$= 0 \quad , \text{ otherwise}$$

Then the conditional p.m.f. of X given $Y = 1$ is

(1) $\dfrac{2x + 9}{24}, x = 1, 2$ (2) $\dfrac{2x + 1}{8}, x = 1, 2$

(3) $\dfrac{x + 3}{9}, x = 1, 2$ (4) $\dfrac{3x + 1}{11}, x = 1, 2$

Options :

1908898961. 1

1908898962. 2

1908898963. 3

1908898964. 4

Question Number : 67 Question Id : 1908892258 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X \sim U(0, 1)$, then the distribution of $\log\left(\dfrac{X}{1 - X}\right)$ is

(1) Normal (2) Logistic

(3) Laplace (4) Weibull

Options :

1908898965. 1

1908898966. 2

1908898967. 3

1908898968. 4

Question Number : 68 Question Id : 1908892259 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X and Y are two normally distributed random variables. Which of the following is true about the joint distribution of X and Y?

(1) Must be Bivariate Normal (2) Need not be Bivariate Normal

(3) Bivariate Cauchy (4) Bivariate Exponential

Options :

1908898969. 1

1908898970. 2

1908898971. 3

1908898972. 4

Question Number : 69 Question Id : 1908892260 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X and Y be independent $N(1, 1)$ variates. For non zero constants a and b, $aX - bY$ follows

(1) $N(a + b, a^2 + b^2)$ (2) $N(a - b, a^2 + b^2)$

(3) $N(a - b, a^2 - b^2)$ (4) $N\left(a - b, \dfrac{a^2 + b^2}{2}\right)$

Options :

1908898973. 1

1908898974. 2

1908898975. 3

1908898976. 4

Question Number : 70 Question Id : 1908892261 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X \sim$ *Exponential (1)* distribution, then the distribution of $Y = e^{-X}$ is

(1)   Normal (0, 1)

(2)   Exponential (1)

(3)   Laplace (0, 1)

(4)   Uniform (0, 1)

Options :

1908898977. 1

1908898978. 2

1908898979. 3

1908898980. 4

Question Number : 71 Question Id : 1908892262 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A paired data set has $n = 5, \Sigma x = 15, \Sigma y = 27, \Sigma xy = 100$ and $\Sigma x^2 = 55$. The value of regression coefficient of y on x is

(1)   19

(2)   1.9

(3)   1

(4)   0.52

Options :

1908898981. 1

1908898982. 2

1908898983. 3

1908898984. 4

Question Number : 72 Question Id : 1908892263 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let (X, Y) have joint pdf $f(x, y) = xe^{-x(1+y)}$, $x \geq 0$, $y \geq 0$ and zero otherwise. Consider the following statements :

(A) $E(Y)$ does not exist but $E(Y \mid x)$ exists.

(B) $E(Y)$ exists but $E(Y \mid x)$ does not exist.

Which of the following is correct?

(1)   Only (A) is true

(2)   Only (B) is true

(3)   Both (A) and (B) are false

(4)   Both (A) and (B) are true

Options :

1908898985. 1

1908898986. 2

1908898987. 3

1908898988. 4

Question Number : 73 Question Id : 1908892264 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The diagonal nature of variance-covariance matrix of bivariate normal distribution implies that the underlying random variables are

(1)   uncorrelated but not independent

(2)   uncorrelated and independent

(3)   correlated

(4)   dependent

Options :

1908898989. 1

1908898990. 2

1908898991. 3

1908898992. 4

Question Number : 74 Question Id : 1908892265 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X and Y be jointly distributed with pdf $f(x, y) = \begin{cases} \dfrac{1+xy}{4}, & |x|<1, |y|<1 \\ 0, & \text{otherwise} \end{cases}$. Then, $E(Y|x) =$

(1) x

(2) $\dfrac{1}{2}x$

(3) $\dfrac{1}{3}x$

(4) $\dfrac{1}{4}x$

Options :

1908898993. 1

1908898994. 2

1908898995. 3

1908898996. 4

Question Number : 75 Question Id : 1908892266 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X and Y be jointly distributed with pdf $f(x,y) = \begin{cases} x+y, & 0<x<1, 0<y<1 \\ 0, & \text{otherwise} \end{cases}$ Then,

$Corr(X,Y) =$

(1) 0

(2) $\dfrac{1}{2}$

(3) $\dfrac{1}{11}$

(4) $-\dfrac{1}{11}$

Options :

1908898997. 1

1908898998. 2

1908898999. 3

1908899000. 4

Question Number : 76 Question Id : 1908892267 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Mode of chi-square distribution with 2 degrees of freedom is

(1) Three (2) One

(3) Two (4) Zero

Options :

1908899001. 1

1908899002. 2

1908899003. 3

1908899004. 4

Question Number : 77 Question Id : 1908892268 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Coefficient of variation of chi-square distribution with 2 degrees of freedom is

(1) Three (2) One

(3) Two (4) Zero

Options :

1908899005. 1

1908899006. 2

1908899007. 3

1908899008. 4

Question Number : 78 Question Id : 1908892269 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $T \sim$ Student's t-distribution with 3 degrees of freedom. Then, $E(T^3) =$

(1) Two

(2) Four

(3) Zero

(4) Does not exist

Options :

1908899009. 1

1908899010. 2

1908899011. 3

1908899012. 4

Question Number : 79 Question Id : 1908892270 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X \sim$ Student's t-distribution with n degrees of freedom. Then, distribution of $Y = \dfrac{1}{X^2}$ is

(1) Chi-square distribution with n degrees of freedom

(2) F-distribution with 1 and n degrees of freedom

(3) F-distribution with n and 1 degrees of freedom

(4) Chi-square distribution with $n-1$ degrees of freedom

Options :

1908899013. 1

1908899014. 2

1908899015. 3

1908899016. 4

Question Number : 80 Question Id : 1908892271 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The F-distribution with 1 and δ_2 degrees of freedom becomes ————, as $\delta_2 \to \infty$

(1)   Chi-square distribution with 1 degrees of freedom

(2)   Normal (0, 1)

(3)   t-distribution with 1 degrees of freedom

(4)   Cauchy (0, 1)

Options :

1908899017. 1

1908899018. 2

1908899019. 3

1908899020. 4

Question Number : 81 Question Id : 1908892272 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X be a random variable with MGF $M(t) = (1 - 2t)^{-1}$ for $t < \dfrac{1}{2}$, The $Var(X) =$

(1)   One   (2)   Two

(3)   Four   (4)   Does not exist

Options :

1908899021. 1

1908899022. 2

1908899023. 3

1908899024. 4

Question Number : 82 Question Id : 1908892273 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X_1, X_2, \ldots$ are i.i.d $B(1, p)$ random variables. Let $S_n = \sum_{k=1}^{n} X_k$, then

$$\lim_{n \to \infty} P\left(\frac{s_n - np}{\sqrt{np(1-p)}} \leq 0 \right) =$$

(1) 0

(2) 0.25

(3) 0.5

(4) 1

Options :

1908899025. 1

1908899026. 2

1908899027. 3

1908899028. 4

Question Number : 83 Question Id : 1908892274 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X_1, X_2, \ldots$ are i.i.d random variables with common pdf $(x) = \begin{cases} \dfrac{1+\delta}{x^2 + \delta}, & x \geq 1 \\ 0, & x < 1 \end{cases}, \delta > 0$.

Consider the following statements :

(A) $E(X)$ does not exists

(B) $E|X|$ exists and weak law of large numbers hold

Which of the following is correct?

(1) Only (A) is true

(2) Only (B) is true

(3) Both (A) and (B) are false

(4) Both (A) and (B) are true

Options :

1908899029. 1

1908899030. 2

1908899031. 3

1908899032. 4

Question Number : 84 Question Id : 1908892275 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the following statements :

(A)   A sufficient statistics contains all information in a sample about parameter.

(B)   Maximum likelihood estimator is unique, if exists.

Which of the following is correct?

(1)   Only (A) is true   (2)   Only (B) is true

(3)   Both (A) and (B) are false   (4)   Both (A) and (B) are true

Options :

1908899033. 1

1908899034. 2

1908899035. 3

1908899036. 4

Question Number : 85 Question Id : 1908892276 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X_1, X_2, ..., X_n$ be a random sample from $Uniform\ (-\theta,\ \theta)$

Which of the following is a sufficient statistics for θ ?

(1) $min\left\{-X_{(1)}, X_{(n)}\right\}$ (2) $X_{(1)}$

(3) $X_{(n)}$ (4) $max\left\{-X_{(1)}, X_{(n)}\right\}$

Options :

1908899037. 1

1908899038. 2

1908899039. 3

Question Number : 86 Question Id : 1908892277 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the following statements about unbiased estimator:

(A)   Unbiased estimator need not be a function of sufficient statistic.

(B)   If there are two unbiased estimators, then there are infinitely many.

Which of the following is correct?

(1)   Only (A) is true   (2)   Only (B) is true

(3)   Both (A) and (B) are false   (4)   Both (A) and (B) are true

Options :

1908899041. 1

1908899042. 2

1908899043. 3

1908899044. 4

Question Number : 87 Question Id : 1908892278 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X_1, X_2,...,X_n$ be a random sample from $Uniform\ (-\theta,\ \theta)$

Which of the following is UMVUE of θ ?

(1) $\dfrac{n}{n+1}X_{(n)}$ (2) $\dfrac{1}{n}X_{(n)}$

(3) $\dfrac{n+1}{n}X_{(n)}$ (4) $X_{(n)}$

Options :

1908899045. 1

1908899046. 2

1908899047. 3

1908899048. 4

Question Number : 88 Question Id : 1908892279 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X_1, X_2,...,X_n$ be a random sample from *poisson* (θ) and $T = \frac{1}{n}\sum_{i=1}^{n} X_i$.

Which of the following is MLE of $e^{-\theta}$?

(1) e^{-T}

(2) e^{T}

(3) $\left(\frac{n+1}{n}\right)^{T}$

(4) $\left(\frac{n}{n+1}\right)^{T}$

Options :

1908899049. 1

1908899050. 2

1908899051. 3

1908899052. 4

Question Number : 89 Question Id : 1908892280 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

An average weight of 49 randomly selected students is 52 Kg and standard deviation is 7 Kg, then assuming that weight of students is normally distributed, 95% confidence interval for mean weight, is

(1)   (50.04, 53.96)

(2)   (50.36, 53.64)

(3)   (48.72, 55.28)

(4)   (50.00, 54.00)

Options :

1908899053. 1

1908899054. 2

1908899055. 3

1908899056. 4

Question Number : 90 Question Id : 1908892281 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Cramer-Rao inequality provides lower bound for variance of

(1)   consistent estimator   (2)   an unbiased estimator

(3)   maximum likelihood estimator   (4)   method of moments estimator

Options :

1908899057. 1

1908899058. 2

1908899059. 3

1908899060. 4

Question Number : 91 Question Id : 1908892282 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X_1, X_2, ..., X_n$ be a random sample from pdf $f(x; \theta) = \begin{cases} (1+\theta)x^\theta, & 0 < x < 1, \theta > -1 \\ 0 & , \text{ otherwise} \end{cases}$ and

$T = \dfrac{1}{n}\sum_{i=1}^{n} X_i$. The method of moments estimator of θ is

(1) T (2) $T+1$

(3) $\dfrac{2T-1}{1-T}$ (4) $\dfrac{1-T}{2T-1}$

Options :

1908899061. 1

1908899062. 2

1908899063. 3

1908899064. 4

Question Number : 92 Question Id : 1908892283 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the following statements:

(A)   A minimal sufficient statistic is always complete statistic.

(B)   A complete sufficient statistic is minimal sufficient statistic.

Which of the following is correct?

(1)   Only (A) is true   (2)   Only (B) is true

(3)   Both (A) and (B) are false   (4)   Both (A) and (B) are true

Options :

1908899065. 1

1908899066. 2

1908899067. 3

1908899068. 4

Question Number : 93 Question Id : 1908892284 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X \sim N(0, 1)$ and $Y \sim \chi_k^2$, then which of the following is always true?

(1) $\dfrac{X}{\sqrt{Y/k}}$ has t-distribution with k degrees of freedom

(2) $\dfrac{X^2}{Y/k}$ has F-distribution with 1 and k degrees of freedom

(3) $Var(X+Y) = 1 + 2k$

(4) $E(X+Y) = k$

Options :

1908899069. 1

1908899070. 2

1908899071. 3

1908899072. 4

Question Number : 94 Question Id : 1908892285 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In Likelihood ratio test, which of the following is true about the test statistic $\lambda(x)$?

(1) $\lambda(x) \geq 0$

(2) $\lambda(x) \leq 0$

(3) $\lambda(x) \in [0, 1]$

(4) $\lambda(x) \geq 1$

Options :

1908899073. 1

1908899074. 2

1908899075. 3

1908899076. 4

Question Number : 95 Question Id : 1908892286 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the following table :

X	0	1	2	3
f_0	0.05	0.3	0.25	0.4
f_1	0.4	0.25	0.3	0.05

For testing, $H_0 : X \sim f_0$ Vs $H_1 : X \sim f_1$, based on sample of size one, most powerful test of size 0.05 will reject H_0 if

(1) $X = 0$

(2) $X = 1$

(3) $X = 2$

(4) $X = 3$

Options :

1908899077. 1

1908899078. 2

1908899079. 3

1908899080. 4

Question Number : 96 Question Id : 1908892287 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Probability of rejecting H_0 when H_1 is true is known as

(1)   Level of significance   (2)   Size of the test

(3)   Probability of Type-II error   (4)   Power of the test

Options :

1908899081. 1

1908899082. 2

1908899083. 3

1908899084. 4

Question Number : 97 Question Id : 1908892288 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the following statements:

(A)   MP test of size α is unique, if exists.

(B)   For the one-parameter exponential family, UMP test does not exist for testing $H_0 : \theta = \theta_0$ Vs $H_1 : \theta \neq \theta_0$

Which of the following is correct?

(1)   Only A is true   (2)   Only B is true

(3)   Both A and B are false   (4)   Both A and B are true

Options :

1908899085. 1

1908899086. 2

1908899087. 3

1908899088. 4

Question Number : 98 Question Id : 1908892289 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For testing $\theta \in \Theta_0$ against $\theta \in \Theta_1$, the likelihood ratio test is a function of

(1)   Sufficient statistics for θ

(2)   Unbiased estimator for θ

(3)   Complete statistics for θ

(4)   Statistics which need not be sufficient for θ

Options :

1908899089. 1

1908899090. 2

1908899091. 3

1908899092. 4

Question Number : 99 Question Id : 1908892290 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X_1, X_2, ..., X_n$ be a random sample from pdf $f(x; \theta) = \begin{cases} \dfrac{1}{\theta} e^{-\frac{x}{\theta}}, & x > 0, \theta > 0 \\ 0 & , \text{otherwise} \end{cases}$

For testing $H_0 : \theta \le \theta_0$ Vs $H_1 : \theta > \theta_0$, the critical region of size α UMP test is ————, where k is determined suitably.

(1) $\sum_{i=1}^{n} X_i < k$ (2) $\sum_{i=1}^{n} X_i > k$

(3) $\sum_{i=1}^{n} X_i^2 < k$ (4) $\sum_{i=1}^{n} X_i^2 > k$

Options :

1908899093. 1

1908899094. 2

1908899095. 3

1908899096. 4

Question Number : 100 Question Id : 1908892291 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $\{x : 1 < x < 2\}$ be the critical region on the basis of single observation x from $U(0, \theta)$ distribution for testing $H_0 : \theta = 1$ against $H_1 : \theta = 2$. Then power of the test is

(1) 1   (2) 2

(3) 0.25   (4) 0.5

Options :

1908899097. 1

1908899098. 2

1908899099. 3

1908899100. 4