National Testing Agency

Question Paper Name :	STATISTICAL SCIENCE 17th September 2021 Shift1
Subject Name :	STATISTICAL SCIENCE
Creation Date :	2021-09-17 15:50:16
Duration :	120
Total Marks :	480
Display Marks:	Yes

STATISTICAL SCIENCE

Group Number :	1
Group Id :	19088972
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	480
Is this Group for Examiner? :	No

STATISTICAL SCIENCE -1

Section Id :	190889146
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	120
Number of Questions to be attempted :	120
Section Marks :	480
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	190889186
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 1908897942 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

NAFED was established on

1. 02 October, 1957
2. 02 October, 1958
3. 02 October, 1959
4. 02 October, 1960

Options :

19088931661. 1

19088931662. 2

19088931663. 3

19088931664. 4

Question Number : 2 Question Id : 1908897943 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ICAR-Indian Institute of Rice Research is located at

1. Hyderabad, Telengana
2. Cuttack, Odisha
3. Kolkata, West Bengal
4. Patna, Bihar

Options :

19088931665. 1

19088931666. 2

19088931667. 3

19088931668. 4

Question Number : 3 Question Id : 1908897944 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Lysimeter is used for the measurement of

1. Density of soil
2. Atmospheric pressure
3. Relative humidity
4. Evapotranspiration

Options :

19088931669. 1

19088931670. 2

19088931671. 3

19088931672. 4

Question Number : 4 Question Id : 1908897945 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Indifference curves are

1. Concave
2. Convex
3. Neither concave nor convex but simply polynomial curves
4. Always straight lines

Options :

19088931673. 1

19088931674. 2

19088931675. 3

19088931676. 4

Question Number : 5 Question Id : 1908897946 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Self-determined learning is also known as

1. Andragogy
2. Pedagogy
3. Heutagogy
4. Geragogy

Options :

19088931677. 1

19088931678. 2

19088931679. 3

19088931680. 4

Question Number : 6 Question Id : 1908897947 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ICAR launched **Krishi Megh** (National Agricultural Research and Education Systems-Cloud Infrastructure and Services) in

1. 2018
2. 2019
3. 2020
4. 2021

Options :

19088931681. 1

19088931682. 2

19088931683. 3

19088931684. 4

Question Number : 7 Question Id : 1908897948 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement 1: Dee-Geo-Woo gene is responsible for dwarfness in Rice.

Statement 2: Fruit of rice is known as **Caryopsis**.

In light of the above statements, choose the *correct* answer from the options given below

1. Statement 1 is true but Statement 2 is false
2. Statement 1 is false but Statement 2 is true
3. Both Statement 1 and 2 are false
4. Both Statement 1 and 2 are true

Options :

19088931685. 1

19088931686. 2

19088931687. 3

19088931688. 4

Question Number : 8 Question Id : 1908897949 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Insect responsible for **Flared square symptoms** in cotton is

1. Spiny bollworm
2. Pink bollworm
3. American boll worm
4. Spotted bollworm

Options :

19088931689. 1

19088931690. 2

19088931691. 3

19088931692. 4

Question Number : 9 Question Id : 1908897950 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement 1: As per Government of India data, the all India production of Milk for 2019-20 is 198.4 million tonnes.

Statement 2: As per Government of India data, the all India production of Egg for 2019-20 is 103.3 million tonnes.

In light of the above statements, choose the *correct* answer from the options given below

1. Statement 1 is true but Statement 2 is false
2. Statement 1 is false but Statement 2 is true
3. Both Statement 1 and 2 are false
4. Both Statement 1 and 2 are true

Options :

19088931693. 1

19088931694. 2

19088931695. 3

19088931696. 4

Question Number : 10 Question Id : 1908897951 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Botanical name of **Emmer wheat** is

1. *Triticum aestivum*
2. *Triticum duram*
3. *Triticum dicoccum*
4. *Triticum compactum*

Options :

19088931697. 1

19088931698. 2

19088931699. 3

19088931700. 4

Question Number : 11 Question Id : 1908897952 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

First transenic plant was developed in

1. Tobacco
2. Cotton
3. Brinjal
4. Mustard

Options :

19088931701. 1

19088931702. 2

19088931703. 3

19088931704. 4

Question Number : 12 Question Id : 1908897953 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match **List I** with **List II**

List I	**List II**
(Special Day)	**(Date)**
1)World Food Day	a) 22 May
2)World Soil Day	b) 5 December
3) World Pulses Day	c) 22 March
4) International Day for Biological Diversity	d) 10 February
5) World Water Day	e) 16 October

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

1. 1)--- d), 2)---c), 3)---b), 4)----e), 5)---a)
2. 1)--- e), 2)---b), 3)---d), 4)----a), 5)---c)
3. 1)--- b), 2)---a), 3)---e), 4)----d), 5)---c)
4. 1)--- a), 2)---c), 3)---e), 4)----b), 5)---d)

Options :

19088931705. 1

19088931706. 2

19088931707. 3

19088931708. 4

Question Number : 13 Question Id : 1908897954 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Any C program

1. must contain at least one function
2. need not contain any function
3. needs input data
4. must contain at least two functions

Options :

19088931709. 1

19088931710. 2

19088931711. 3

19088931712. 4

Question Number : 14 Question Id : 1908897955 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following languages is case sensitive ?

1. FORTRAN
2. BASIC
3. C
4. Neither FORTRAN nor BASIC

Options :

19088931713. 1

19088931714. 2

19088931715. 3

19088931716. 4

Question Number : 15 Question Id : 1908897956 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

CDROM stands for

1. Compactable Read Only Memory
2. Compact Data Read Only Memory
3. Compactable Disk Read Only Memory
4. Compact Disk Read Only Memory

Options :

19088931717. 1

19088931718. 2

19088931719. 3

19088931720. 4

Question Number : 16 Question Id : 1908897957 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A computer cannot boot if it does not have the

1. Assembler
2. Compiler
3. Operating System
4. Loader

Options :

19088931721. 1

19088931722. 2

19088931723. 3

19088931724. 4

Question Number : 17 Question Id : 1908897958 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

ASCII stands for

1. American Stable Code for International Interchange
2. American Standard Case for Institutional Interchange
3. American Standard Code for Information Interchange
4. American Standard Code for Interchange Information

Options :

19088931725. 1

19088931726. 2

19088931727. 3

19088931728. 4

Question Number : 18 Question Id : 1908897959 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

DOS stands for

1. Disk Operating System
2. Disk operating session
3. Digital Operating System
4. Digital Open system

Options :

19088931729. 1

19088931730. 2

19088931731. 3

19088931732. 4

Question Number : 19 Question Id : 1908897960 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is NOT a binary number?

1. 001
2. 010
3. 011
4. 012

Options :

19088931733. 1

19088931734. 2

19088931735. 3

19088931736. 4

Question Number : 20 Question Id : 1908897961 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Addition of two binary numbers 11 and 01 gives the binary number

1. 12
2. 101
3. 10
4. 100

Options :

19088931737. 1

19088931738. 2

19088931739. 3

19088931740. 4

Question Number : 21 Question Id : 1908897962 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

LAN stands for

1. Limited Area Network
2. Logical Area Network
3. Local Area Network
4. Large Area Network

Options :

19088931741. 1

19088931742. 2

19088931743. 3

19088931744. 4

Question Number : 22 Question Id : 1908897963 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Internet Explorer is

1. An Icon
2. A File Manager
3. A Browser
4. The Internet

Options :

19088931745. 1

19088931746. 2

19088931747. 3

19088931748. 4

Question Number : 23 Question Id : 1908897964 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

BLAST stands for

1. Basic Linear Alignment Sequence Tool
2. Biological Linear Alignment Sequence Tool
3. Basic Local Alignment Sequence Tool
4. Biological Local Alignment Sequence Tool

Options :

19088931749. 1

19088931750. 2

19088931751. 3

19088931752. 4

Question Number : 24 Question Id : 1908897965 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

NCBI stands for

1. National Centre for Bioinformatics
2. National Center for Biotechnology Information
3. National Council for Bioinformatics
4. National Council for Biological Information

Options :

19088931753. 1

19088931754. 2

19088931755. 3

19088931756. 4

Question Number : 25 Question Id : 1908897966 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the yield of paddy from 10 different fields are 7.1, 7.2, 7.0, 5.2, 6.5,7.1, 7.8, 6.6, 7.1, 6.7 then the modal value is

1. 5.2
2. 7.8
3. 7.1
4. 6.5

Options :

19088931757. 1

19088931758. 2

19088931759. 3

19088931760. 4

Question Number : 26 Question Id : 1908897967 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following has no units ?

1. variance
2. inter-quartile range
3. standard deviation
4. coefficient of variation

Options :

19088931761. 1

19088931762. 2

19088931763. 3

19088931764. 4

Question Number : 27 Question Id : 1908897968 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X follows binomial distribution with parameters n = 10, p = 0.2. Then mean of the random variable X is

1. 10
2. 0.2
3. 2
4. 1.6

Options :

19088931765. 1

19088931766. 2

19088931767. 3

19088931768. 4

Question Number : 28 Question Id : 1908897969 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X follows Normal distribution with mean 50 and variance 3600 then sample mean $\overline{X}$ based on a large sample of 100 observations follows Normal distribution with parameters

1. mean 50, variance 3600
2. mean 60, variance 60
3. mean 50, variance 36
4. mean 50, variance 60

Options :

19088931769. 1

19088931770. 2

19088931771. 3

19088931772. 4

Question Number : 29 Question Id : 1908897970 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If Y follows Chi-square distribution with 16 degrees of freedom. Then mean of Y is

1. 16
2. 4
3. 32
4. 196

Options :

19088931773. 1

19088931774. 2

19088931775. 3

19088931776. 4

Question Number : 30 Question Id : 1908897971 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The difference A - B between two sets A and B is equal to

1. $A \cup B^c$
2. $A \cap B^c$
3. $A^c \cap B$
4. $A^c \cup B^c$

Options :

19088931777. 1

19088931778. 2

19088931779. 3

19088931780. 4

Question Number : 31 Question Id : 1908897972 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Type II error in testing of hypothesis refers to

1. rejecting H_0 when it is true
2. accepting H_0 when it is false
3. probability of rejecting H_0 when it is true
4. probability of accepting H_0 when it is false

Options :

19088931781. 1

19088931782. 2

19088931783. 3

19088931784. 4

Question Number : 32 Question Id : 1908897973 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A two-independent sample *t*-test statistic based on sample sizes 15 and 18 with equal population variances follows

1. *t* distribution with 31 degrees of freedom
2. *t* distribution with 30 degrees of freedom
3. *t* distribution with 32 degrees of freedom
4. *Z* distribution with 33 degrees of freedom

Options :

19088931785. 1

19088931786. 2

19088931787. 3

19088931788. 4

Question Number : 33 Question Id : 1908897974 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The range of correlation coefficient is

1. 0 to 1
2. 0 to ∞
3. $-\infty$ to ∞
4. -1 to 1

Options :

19088931789. 1

19088931790. 2

19088931791. 3

19088931792. 4

Question Number : 34 Question Id : 1908897975 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In simple linear regression $Y = \beta_0 + \beta_1 X + \in$, β_0 and β_1 are known as

1. slope and intercept of the regression line
2. intercept and slope of the regression line
3. first order slope and first order intercept of the regression line
4. mean and variance of X

Options :

19088931793. 1

19088931794. 2

19088931795. 3

19088931796. 4

Question Number : 35 Question Id : 1908897976 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The procedure of decomposing the overall variation in the observed responses in an experiment into different components attributable to various sources of variation is known as

1. analysis of decomposition
2. analysis of variation
3. analysis of covariance
4. analysis of variance

Options :

19088931797. 1

19088931798. 2

19088931799. 3

19088931800. 4

Question Number : 36 Question Id : 1908897977 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If Y is a random variable with variance 9, then Variance of 3Y - 9 is

1. 27
2. 81
3. 0
4. 18

Options :

19088931801. 1

19088931802. 2

19088931803. 3

19088931804. 4

Question Number : 37 Question Id : 1908897978 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Randomization in designed experiments ensures that

1. errors are independent
2. error variances are homogeneous
3. error variance is stable
4. experimental units are homogeneous

Options :

19088931805. 1

19088931806. 2

19088931807. 3

19088931808. 4

Question Number : 38 Question Id : 1908897979 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following design(s) is/are advocated when experimental units are homogeneous?

1. CRD only
2. RCBD only
3. Either CRD or RCBD
4. Neither CRD nor RCBD

Options :

19088931809. 1

19088931810. 2

19088931811. 3

19088931812. 4

Question Number : 39 Question Id : 1908897980 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Number of grains per panicle is a

1. discrete variable
2. continuous variable
3. both discrete and continuous variable
4. neither discrete nor continuous variable

Options :

19088931813. 1

19088931814. 2

19088931815. 3

19088931816. 4

Question Number : 40 Question Id : 1908897981 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The variance of sample mean of a sample of size n from a population with N units under SRSWOR is

1. $\left(\frac{1}{n}-\frac{1}{N}\right)\sum_{i=1}^{n}(y_i-\bar{y})^2$
2. $\left(\frac{1}{n}-\frac{1}{N}\right)\sum_{i=1}^{n}(y_i-\bar{y})^2$
3. $\left(\frac{1}{N}-\frac{1}{n}\right)\sum_{i=1}^{n}(y_i-\bar{y})^2$
4. $\left(\frac{1}{N}-\frac{1}{n}\right)\sum_{i=1}^{N}(y_i-\bar{Y})^2$

Options :

19088931817. 1

19088931818. 2

19088931819. 3

19088931820. 4

Question Number : 41 Question Id : 1908897982 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of following random variable is always non-negative ?

1. standard normal variate
2. a chi-square variate
3. a *t*-variate
4. normal variate

Options :

19088931821. 1

19088931822. 2

19088931823. 3

19088931824. 4

Question Number : 42 Question Id : 1908897983 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If probability of type II error of a statistical test is 0.2 then power of the test is

1. 0.2
2. 5
3. 20%
4. 0.8

Options :

19088931825. 1

19088931826. 2

19088931827. 3

19088931828. 4

Question Number : 43 Question Id : 1908897984 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a simple bar diagram, the heights of the bars are proportional to

1. values of the attributes
2. means of the attributes
3. variances of the attributes
4. medians of attributes

Options :

19088931829. 1

19088931830. 2

19088931831. 3

19088931832. 4

Question Number : 44 Question Id : 1908897985 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Standard deviation of the numbers 2,2,2,2,2,2 is

1. 0
2. 2
3. $\sqrt{12}$
4. $\frac{1}{6}\sqrt{12}$

Options :

19088931833. 1

19088931834. 2

19088931835. 3

19088931836. 4

Question Number : 45 Question Id : 1908897986 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is always true ?

1. $\sum_i (x_i - \bar{x}) = 0$
2. $\sum_i |x_i - \bar{x}| = 0$
3. $\sum_i (x_i - \bar{x})^2 = 0$
4. $\sum_i f_i |x_i - \bar{x}| = 0$

Options :

19088931837. 1

19088931838. 2

19088931839. 3

19088931840. 4

Question Number : 46 Question Id : 1908897987 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If Y follows Normal distribution with mean 4 and variance 16, then the standard Normal deviate is

1. (Y – 4)/16
2. (Y – 16)/4
3. (Y – 4)/4
4. (Y – 16)/16

Options :

19088931841. 1

19088931842. 2

19088931843. 3

19088931844. 4

Question Number : 47 Question Id : 1908897988 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

To test H_0: $\mu = 0$ vs H_1: $\mu \neq 0$ when the population variance is known, which of the following test is used?

1. *t*-test
2. Chi-square test
3. Z- test
4. F-test

Options :

19088931845. 1

19088931846. 2

19088931847. 3

19088931848. 4

Question Number : 48 Question Id : 1908897989 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Testing H_0: $\mu = 0$ vs H_1: $\mu > 0$ is a

1. left tailed test
2. right tailed test
3. two tailed test
4. vertical test

Options :

19088931849. 1

19088931850. 2

19088931851. 3

19088931852. 4

Question Number : 49 Question Id : 1908897990 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement 1: The harmonic mean of n numbers is the reciprocal of the arithmetic mean of the reciprocals of the numbers.

Statement 2: Geometric mean is the arithmetic mean of harmonic mean and arithmetic mean.

In light of the above statements, choose the *correct* answer from the options given below

1. Statement 1 is true but Statement 2 is false
2. Statement 1 is false but Statement 2 is true
3. Both Statement 1 and 2 are false
4. Both Statement 1 and 2 are true

Options :

19088931853. 1

19088931854. 2

19088931855. 3

19088931856. 4

Question Number : 50 Question Id : 1908897991 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The average of the 7 numbers 7, 9, 12, x, 5, 4, 11 is 9. The missing number is

1. 8
2. 10
3. 13
4. 15

Options :

19088931857. 1

19088931858. 2

19088931859. 3

19088931860. 4

Question Number : 51 Question Id : 1908897992 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let X be a Poisson variate with $P(X=3)=P(X=4)$. Then $P(x\neq 0)$ is

1. e^{-4}
2. $1-e^{-4}$
3. $1-e^{-3}$
4. e^{-3}

Options :

19088931861. 1

19088931862. 2

19088931863. 3

19088931864. 4

Question Number : 52 Question Id : 1908897993 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The variance of 1,2,3,4,5,6,7,8,9 and 10 is

1. $\frac{101}{12}$
2. $\frac{11}{12}$
3. $\frac{99}{12}$
4. $\frac{9}{12}$

Options :

19088931865. 1

19088931866. 2

19088931867. 3

19088931868. 4

Question Number : 53 Question Id : 1908897994 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Semi inter-quartile range is given by

1. $\frac{Q_3 + Q_1}{2}$
2. $\frac{Q_3 - Q_1}{2}$
3. $Q_3 - Q_1$
4. $\frac{Q_3 - Q_1}{4}$

Options :

19088931869. 1

19088931870. 2

19088931871. 3

19088931872. 4

Question Number : 54 Question Id : 1908897995 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A number is chosen randomly from each of the two following sets

Set 1: {1,2,3,4,5,6,7}

Set 2: {3,4,5,6,7,8}

Find the probability that the sum of the two numbers is 6.

1. $\frac{3}{16}$
2. $\frac{1}{14}$
3. $\frac{1}{7}$
4. $\frac{1}{6}$

Options :

19088931873. 1

19088931874. 2

19088931875. 3

19088931876. 4

Question Number : 55 Question Id : 1908897996 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A group consists of 9 students from 3 disciplines. Out of the 9 students, 4 are from Statistics, 3 are from Economics and 2 are from Chemistry. Three students are selected randomly. What is the probability that, out of the selected students 2 are from Statistics?

1. $\frac{3}{14}$
2. $\frac{2}{14}$
3. $\frac{5}{14}$
4. $\frac{1}{14}$

Options :

19088931877. 1

19088931878. 2

19088931879. 3

19088931880. 4

Question Number : 56 Question Id : 1908897997 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A problem in Statistics is given to three students A, B and C whose chances of solving it are 1/2, 3/4 and 1/4 respectively. What is the probability that the problem will be solved if all of them tried independently?

1. $\frac{3}{32}$
2. $\frac{29}{32}$
3. $\frac{1}{32}$
4. $\frac{1}{4}$

Options :

19088931881. 1

19088931882. 2

19088931883. 3

19088931884. 4

Question Number : 57 Question Id : 1908897998 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two means are compared using t-test to assess the statistical significance of the difference between two samples. Size of the first sample is 17 and the size of the second sample is 13. How many degrees of freedom are associated with the critical t-value?

1. 32
2. 31
3. 29
4. 28

Options :

19088931885. 1

19088931886. 2

19088931887. 3

19088931888. 4

Question Number : 58 Question Id : 1908897999 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following probability mass function is impossible?

1. A Poisson distribution with mean 16 and standard deviation 4
2. A binomial distribution with mean 16 and standard deviation 4
3. A binomial distribution with mean 18 and variance 6
4. A Poisson distribution with mean 5 and variance 5

Options :

19088931889. 1

19088931890. 2

19088931891. 3

19088931892. 4

Question Number : 59 Question Id : 1908898000 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In testing of hypothesis, whether a critical region is one sided or two sided depends on

1. Null hypothesis
2. Alternate Hypothesis
3. Simple Hypothesis
4. Composite Hypothesis

Options :

19088931893. 1

19088931894. 2

19088931895. 3

19088931896. 4

Question Number : 60 Question Id : 1908898001 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement I: Probability of rejecting null hypothesis when it is true is known as level of significance.

Statement II: Probability of rejecting null hypothesis when it is false or alternate hypothesis is true is known as power of the test.

In light of the above statements, choose the *correct* answer from the options given below

1. Statement I is true but Statement II is false
2. Statement I is false but Statement II is true
3. Both Statement I and II are false
4. Both Statement I and II are true

Options :

19088931897. 1

19088931898. 2

19088931899. 3

19088931900. 4

Question Number : 61 Question Id : 1908898002 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which test will be used in order to see whether the observed phenotypic segregation ratio in F_1 generation is 3:1 or not when two hybrids are crossed?

1. t-test
2. F-test
3. χ^2-test
4. Z-test

Options :

19088931901. 1

19088931902. 2

19088931903. 3

19088931904. 4

Question Number : 62 Question Id : 1908898003 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two lines of regression intersect at

1. $(\overline{X}, \overline{Y})$ where $\overline{X}, \overline{Y}$ are the mean of the two random variable X and Y
2. (0,0)
3. (1,1)
4. The two lines are always parallel. They never intersect with each other.

Options :

19088931905. 1

19088931906. 2

19088931907. 3

19088931908. 4

Question Number : 63 Question Id : 1908898004 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The coefficient of correlation between two variables X and Y is 0.6. Their covariance is 4.8. The variance of X is 9. Then the standard deviation of Y is

1. $\frac{4.8}{3 \times 0.6}$
2. $\frac{3}{4.8 \times 0.6}$
3. $\frac{9}{4.8 \times 0.6}$
4. $\frac{4.8}{9 \times 0.6}$

Options :

19088931909. 1

19088931910. 2

19088931911. 3

19088931912. 4

Question Number : 64 Question Id : 1908898005 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The Binomial distribution with probability of success as p, will be symmetric if

1. $p < \frac{1}{2}$
2. $p > \frac{1}{2}$
3. $p = 0$
4. $p = \frac{1}{2}$

Options :

19088931913. 1

19088931914. 2

19088931915. 3

19088931916. 4

Question Number : 65 Question Id : 1908898006 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X follows binomial distribution with parameters 10 and $\frac{1}{2}$, then $E(X-5)^2 =$

1. 0.25
2. 2.50
3. 5
4. 10

Options :

19088931917. 1

19088931918. 2

19088931919. 3

19088931920. 4

Question Number : 66 Question Id : 1908898007 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If X and Y are independent Poisson variates with means as 10 and 5 respectively. Then $V(X-2Y) =$

1. 10
2. 5
3. 30
4. 20

Options :

19088931921. 1

19088931922. 2

19088931923. 3

19088931924. 4

Question Number : 67 Question Id : 1908898008 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Given below are two statements

Statement I: For normal distribution, all central moments exist.

Statement II: For normal distribution Mean deviation (MD): Quartile deviation(QD): Standard Deviation (SD) is 10:12:15.

In light of the above statements, choose the *correct* answer from the options given below

1. Statement I is true but Statement II is false
2. Statement I is false but Statement II is true
3. Both Statement I and II are false
4. Both Statement I and II are true

Options :

19088931925. 1

19088931926. 2

19088931927. 3

19088931928. 4

Question Number : 68 Question Id : 1908898009 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a completely randomized design with 6 treatments each replicated 3 times, the F-ratio would have degrees of freedom equal to

1. F(5,12)
2. F(5,18)
3. F(6,12)
4. F(6,18)

Options :

19088931929. 1

19088931930. 2

19088931931. 3

19088931932. 4

Question Number : 69 Question Id : 1908898010 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The number of possible samples of size n out of N population units in simple random sampling without replacement is

1. N^n
2. ${}^{N}C_{n}$
3. n!
4. n^N

Options :

19088931933. 1

19088931934. 2

19088931935. 3

19088931936. 4

Question Number : 70 Question Id : 1908898011 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $P(A \mid B) < P(A)$, then $P(B \mid A)$ is

1. $< P(B)$
2. $> P(B)$
3. $= P(B)$
4. $\neq P(B)$

Options :

19088931937. 1

19088931938. 2

19088931939. 3

19088931940. 4

Question Number : 71 Question Id : 1908898012 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In case of Completely randomized design (CRD) which of the following statement is false?

1. CRD is flexible design in the sense that, any treatment can have any number of replications
2. CRD provides least degree of freedom to estimate experimental error.
3. Principle of local control is not applicable for CRD
4. CRD is mainly applicable for lab experiments.

Options :

19088931941. 1

19088931942. 2

19088931943. 3

19088931944. 4

Question Number : 72 Question Id : 1908898013 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The pair of values representing two correct regression coefficients in case of simple linear regression is

1. $\left(-3, \frac{1}{2}\right)$
2. $\left(3, \frac{1}{2}\right)$
3. $\left(\frac{4}{3}, \frac{1}{2}\right)$
4. $\left(\frac{4}{3}, -\frac{1}{2}\right)$

Options :

19088931945. 1

19088931946. 2

19088931947. 3

19088931948. 4

Question Number : 73 Question Id : 1908898014 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following statements is false?

1. If a and b are positive real numbers, then $\sqrt{ab} \leq (a+b)/2$
2. *If* $0 \leq a < b$, $(a, b \in \mathbb{R})$ then $a^2 < ab < b^2$
3. Sup $\{1 - 1/n : n \in N\} = 1$
4. If a is a real number such that $0 < a < 1$, then $0 < a^2 < a < 1$.

Options :

19088931949. 1

19088931950. 2

19088931951. 3

19088931952. 4

Question Number : 74 Question Id : 1908898015 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For which values of x, the complex numbers Cos x + i Sin 2x and Sin x – i Cos 2x are conjugates of each other?

1. $x = 0$
2. $x = (n + 1/2) \pi$
3. No value of x
4. $x = n\pi$

Options :

19088931953. 1

19088931954. 2

19088931955. 3

19088931956. 4

Question Number : 75 Question Id : 1908898016 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The cubic equation $4x^3 + 3x^2 + 2x + 1 = 0$ has:

1. 3 real roots
2. A real root in the interval [-2, -1)
3. No real roots
4. 1 real root

Options :

19088931957. 1

19088931958. 2

19088931959. 3

19088931960. 4

Question Number : 76 Question Id : 1908898017 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The modulus and argument of complex number

$z = \frac{1}{\left(2\sqrt{3} + 2i\right)^4}$ is

1. $|z| = \frac{1}{2^{16}}, \ Arg(z) = \frac{\pi}{3}$
2. $|z| = \frac{-1}{2^8}, Arg(z) = \frac{5\pi}{12}$
3. $|z| = \frac{1}{2^8}, Arg(z) = \frac{4\pi}{3}$
4. $|z| = \frac{1}{2^8}, Arg(z) = \frac{2\pi}{3}$

Options :

19088931961. 1

19088931962. 2

19088931963. 3

19088931964. 4

Question Number : 77 Question Id : 1908898018 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The Area of triangle whose vertices are iota, w and w^2, where w and w^2 are non real cube roots of unity, is :

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

Options :

19088931965. 1

19088931966. 2

19088931967. 3

19088931968. 4

Question Number : 78 Question Id : 1908898019 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Out of 60 chidren in a colony, it was found that 25 like cricket, 26 like football and 26 like badminton. 9 like both cricket and badminton, 11 like both cricket and football and 8 like both football and badminton. 8 children don't like any of the 3 sports. Then the number of children who like all the 3 sports is:

1. 14
2. 3
3. 11
4. 10

Options :

19088931969. 1

19088931970. 2

19088931971. 3

19088931972. 4

Question Number : 79 Question Id : 1908898020 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $v_1 = \begin{pmatrix} 1 \\ -2 \\ 7 \end{pmatrix}$, $v_2 = \begin{pmatrix} 2 \\ -2 \\ 3 \end{pmatrix}$ be 2 vectors in $\mathbb{R}^3$.

Then which of the following is true?

1. $\{v_1, v_2\}$ is a basis of $\mathbb{R}^3$
2. $\{v_1, v_2\}$ is a basis of $\mathbb{R}^2$
3. $\{v_1, v_2\}$ is neither linearly independent, nor it spans $\mathbb{R}^3$
4. $\{v_1, v_2\}$ is a basis of the space span $\{v_1, v_2\}$

Options :

19088931973. 1

19088931974. 2

19088931975. 3

19088931976. 4

Question Number : 80 Question Id : 1908898021 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Rank of the matrix

$$A=\begin{pmatrix} 2 & 3 & -1 \\ -8 & -7 & 6 \\ 6 & -1 & -7 \end{pmatrix} \text{ is}$$

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

Options :

19088931977. 1

19088931978. 2

19088931979. 3

19088931980. 4

Question Number : 81 Question Id : 1908898022 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The number of distinct real roots of

$$\begin{vmatrix} \sin x & \cos x \\ \cos x & \sin x \end{vmatrix} = 0 \text{ in the interval } \frac{-\pi}{4} \le x \le \frac{\pi}{4} \text{ is:}$$

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

Options :

19088931981. 1

19088931982. 2

19088931983. 3

19088931984. 4

Question Number : 82 Question Id : 1908898023 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $X = \begin{pmatrix} 1 & a & 3 \\ 1 & 3 & 3 \\ 4 & 2 & 2 \end{pmatrix}$ be the adjoint of a 3×3 matrix A and let Determinant(A) = 6. Then, the value of a is :

1. 33/10
2. 0
3. 66/5
4. 33/5

Options :

19088931985. 1

19088931986. 2

19088931987. 3

19088931988. 4

Question Number : 83 Question Id : 1908898024 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $A = \begin{pmatrix} 1 & -2 & -9 & 5 \\ 0 & 1 & 2 & -6 \end{pmatrix}$

Then, the solution set of the system of equations A x = 0 :

1. has dimension 2
2. is a singleton set
3. is one dimensional
4. is 4 dimensional

Options :

19088931989. 1

19088931990. 2

19088931991. 3

19088931992. 4

Question Number : 84 Question Id : 1908898025 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\begin{pmatrix} 1 \\ -2 \\ 1 \end{pmatrix}$ is the eigen vector of matrix $\begin{pmatrix} 3 & 6 & 7 \\ 3 & 3 & 7 \\ 5 & 6 & 5 \end{pmatrix}$ with respect to which eigen value?

1. 15
2. 2
3. -15
4. -2

Options :

19088931993. 1

19088931994. 2

19088931995. 3

19088931996. 4

Question Number : 85 Question Id : 1908898026 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The sequence given by

$$a_1 = \frac{3}{2}, a_{n+1} = 2 - \frac{1}{a_n} \forall\, n \geq 1 :$$

1. is monotonic and converges to 2
2. is bounded and converges to 1
3. is bounded but not monotonic
4. is monotonic and divergent

Options :

19088931997. 1

19088931998. 2

19088931999. 3

19088932000. 4

Question Number : 86 Question Id : 1908898027 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The series

$$\sum_{n=2}^{\infty} a_n, \text{ where the } n^{th} \text{ term is } a_n = \frac{1}{\log\ n} :$$

1. is divergent
2. is convergent to 1
3. is convergent to log 2
4. is convergent to 2

Options :

19088932001. 1

19088932002. 2

19088932003. 3

19088932004. 4

Question Number : 87 Question Id : 1908898028 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The series

$$\sum_{n=1}^{\infty} \frac{x^n}{n+1} \text{ is :}$$

1. divergent for all x
2. convergent if $x < 1$ and divergent if $x > 1$
3. convergent if $x > 1$ and divergent if $x < 1$
4. convergent for all x

Options :

19088932005. 1

19088932006. 2

19088932007. 3

19088932008. 4

Question Number : 88 Question Id : 1908898029 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Equation of a straight line which passes through the point P(-1, 2) such that the part of the line between the 2 axes is divided internally by the point P in the ratio 3 : 4 is :

1. $3x - 8y + 14 = 0$
2. $3x + 8y - 14 = 0$
3. $8x - 3y + 14 = 0$
4. $8x + 3y - 14 = 0$

Options :

19088932009. 1

19088932010. 2

19088932011. 3

19088932012. 4

Question Number : 89 Question Id : 1908898030 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The equation of second degree $2x^2 - 3xy - py^2 + x + qy - 1 = 0$ represents 2 mutually perpendicular straight lines if :

1. p = 1, q = 5
2. p = -9, q = 2
3. p = 2, q = 5
4. p = -2, q = -5

Options :

19088932013. 1

19088932014. 2

19088932015. 3

19088932016. 4

Question Number : 90 Question Id : 1908898031 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The number of common tangents to the circles $x^2 + y^2 - 6x - 14y + 48 = 0$ and $x^2 + y^2 = 6x$ is :

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

Options :

19088932017. 1

19088932018. 2

19088932019. 3

19088932020. 4

Question Number : 91 Question Id : 1908898032 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The equation of a normal to the parabola $y^2 = 4x$, which passes through the point $(9, 6)$ is :

1. $x + 3y + 15 = 0$
2. $2x - y + 12 = 0$
3. $2x + y + 12 = 0$
4. $2x - y - 12 = 0$

Options :

19088932021. 1

19088932022. 2

19088932023. 3

19088932024. 4

Question Number : 92 Question Id : 1908898033 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A line $px + qy + r = 0$ touches the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$. Then which of the following statements is true:

1. $ap^2 + bq^2 = r^2$
2. $a^2p^2 + b^2q^2 = r^2$
3. $a^2p + b^2q = r^2$
4. $\frac{a^2}{p^2} + \frac{b^2}{q^2} = r$

Options :

19088932025. 1

19088932026. 2

19088932027. 3

19088932028. 4

Question Number : 93 Question Id : 1908898034 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the hyperbola $\frac{x^2}{(\cos\theta)^2} - \frac{y^2}{(\sin\theta)^2} = 1$. If θ changes, which of the following remains constant?

1. vertices
2. directrix
3. focii
4. eccentricity

Options :

19088932029. 1

19088932030. 2

19088932031. 3

19088932032. 4

Question Number : 94 Question Id : 1908898035 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $f(x) = \begin{cases} 2^{1/x}, & x \neq 0 \\ 0, & x = 0 \end{cases}$

Then,

1. $\lim_{x\to 0} f(x)$ does not exist
2. f is continuous at $x = 0$
3. left hand limit at 0 does not exist
4. $\lim_{x\to 0} f(x)$

Options :

19088932033. 1

19088932034. 2

19088932035. 3

19088932036. 4

Question Number : 95 Question Id : 1908898036 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The derivative of $f(x) = x^{\sin x}$ is

1. $\cos x \log x + (\sin x)/x$
2. $x[\cos x \log x + (\sin x)/x]$
3. $x^{\cos x}[\cos x \log x]$
4. $x^{\sin x}[\cos x \log x + (\sin x)/x]$

Options :

19088932037. 1

19088932038. 2

19088932039. 3

19088932040. 4

Question Number : 96 Question Id : 1908898037 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Expansion of $f(x) = \log\ (1 + x)$ by Taylor series is :

1. $x - \frac{x^2}{2} + \frac{x^3}{3} - \ldots$
2. $1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} +$
3. $1 - x + \frac{x^2}{2} - \frac{x^3}{3} \ldots.$
4. $x - \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots..$

Options :

19088932041. 1

19088932042. 2

19088932043. 3

19088932044. 4

Question Number : 97 Question Id : 1908898038 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The curvature of a circle of radius 'a' is

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

Options :

19088932045. 1

19088932046. 2

19088932047. 3

19088932048. 4

Question Number : 98 Question Id : 1908898039 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A line $y = L$ is called a horizontal asymptote of the graph of a function $f(x)$ if

1. $\lim_{x \to +\infty} f(x) = L$ *or* $\lim_{x \to -\infty} f(x) = L$
2. $\lim_{x \to 0} f(x) = L$
3. $\lim_{x \to 0} f(x) = -L$
4. $\lim_{x \to 0^+} f(x) = \frac{1}{L}$

Options :

19088932049. 1

19088932050. 2

19088932051. 3

19088932052. 4

Question Number : 99 Question Id : 1908898040 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $z = x^4 \sin(xy^3)$, then the value of $\frac{\partial z}{\partial x}$ at the point $(0,0)$ is given by

1. 1
2. 0
3. $\frac{\pi}{2}$
4. -1

Options :

19088932053. 1

19088932054. 2

19088932055. 3

19088932056. 4

Question Number : 100 Question Id : 1908898041 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the equation $f(x,y) = C$ defines y implicitly as a differentiable function of x, and if $\frac{\partial f}{\partial y} \neq 0$, then $\frac{dy}{dx}$ is equal to

1. $\frac{\partial f/\partial x}{\partial f/\partial y}$
2. $-\frac{\partial f/\partial x}{\partial f/\partial y}$
3. $\frac{\partial^2 f}{\partial x^2}$
4. $\frac{\partial^2 f}{\partial x^2} \Big/ \frac{\partial^2 f}{\partial^2 y}$

Options :

19088932057. 1

19088932058. 2

19088932059. 3

19088932060. 4

Question Number : 101 Question Id : 1908898042 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For the equation $yz - \ln(z) = x + y$, where z is a function of two independent variables x and y and the partial derivatives exists. The value of $\frac{\partial z}{\partial x}$ is given by

1. $\frac{x}{yz-1}$
2. $\frac{y}{yz-1}$
3. $\frac{1}{yz-1}$
4. $\frac{z}{yz-1}$

Options :

19088932061. 1

19088932062. 2

19088932063. 3

19088932064. 4

Question Number : 102 Question Id : 1908898043 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If u and v are functions of two independent variables x and y, then the determinant $\begin{vmatrix} \frac{\partial u}{\partial x} & \frac{\partial u}{\partial y} \\ \frac{\partial v}{\partial x} & \frac{\partial v}{\partial y} \end{vmatrix}$ is called

1. Jacobian x and y with respect to u and v
2. Jacobian of u and x with respect to v and y
3. Jacobian of u and v with respect to x and y
4. Jacobian of u and y with respect to v and x

Options :

19088932065. 1

19088932066. 2

19088932067. 3

19088932068. 4

Question Number : 103 Question Id : 1908898044 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $z = 3x^2y^3$, $x = t^4$ and $y = t^2$, then using chain rule $\frac{dz}{dt}$ is given by

1. $42\,t^{13}$
2. $52\,t^{13}$
3. $32\,t^{13}$
4. 0

Options :

19088932069. 1

19088932070. 2

19088932071. 3

19088932072. 4

Question Number : 104 Question Id : 1908898045 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of $\int (x^2+1)^{50} \cdot 2x\,dx$ is given by

1. $\frac{(x^2+1)^{50}}{50} + C$
2. $\frac{(x^2+1)^{52}}{52} + C$
3. $\frac{(x^2+1)^{51}}{51} + C$
4. $\frac{(x^2+1)^{51}}{50} + C$

Options :

19088932073. 1

19088932074. 2

19088932075. 3

19088932076. 4

Question Number : 105 Question Id : 1908898046 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of $\int \frac{\cos x}{\sin^2 x} dx$, is given by

1. $-\csc x + C$
2. $-\csc x \cot x + C$
3. $\csc x + C$
4. $\csc x \cot x + C$

Options :

19088932077. 1

19088932078. 2

19088932079. 3

19088932080. 4

Question Number : 106 Question Id : 1908898047 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of $\int_0^2 x\left(x^2+1\right)^3 dx$, is given by

1. 77
2. 76
3. 78
4. 79

Options :

19088932081. 1

19088932082. 2

19088932083. 3

19088932084. 4

Question Number : 107 Question Id : 1908898048 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of $\iint_R y^2 x \, dy \, dx$ over the rectangle, $R = \{(x, y) : -3 \le x \le 2, 0 \le y \le 1\}$

is given by

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

Options :

19088932085. 1

19088932086. 2

19088932087. 3

19088932088. 4

Question Number : 108 Question Id : 1908898049 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $\beta(m,n), \Gamma(m)$ and $\Gamma(n)$ for $m > 0,\ n > 0$ represents beta and gamma functions respectively, then which one of the following is correct?

1. $\beta(m,n) = \dfrac{\Gamma(m) + \Gamma(n)}{\Gamma(m+n)}$
2. $\beta(m,n) = \dfrac{\Gamma(m+n)}{\Gamma(m) + \Gamma(n)}$
3. $\beta(m,n) = \dfrac{\Gamma(m)\Gamma(n)}{\Gamma(m+n)}$
4. $\beta(m,n) = \dfrac{\Gamma(m+n)}{\Gamma(m)\Gamma(n)}$

Options :

19088932089. 1

19088932090. 2

19088932091. 3

19088932092. 4

Question Number : 109 Question Id : 1908898050 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The solution of the initial value problem $\dfrac{dy}{dx} = -6xy\ ;\ y(0) = 7$ is given by

1. $y(x) = 7e^{-3x^2}$
2. $y(x) = 3e^{-7x^2}$
3. $y(x) = 7e^{-x^2}$
4. $y(x) = 3e^{-x^2}$

Options :

19088932093. 1

19088932094. 2

19088932095. 3

19088932096. 4

Question Number : 110 Question Id : 1908898051 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The necessary and sufficient condition for the differential equation, $M(x,y)\,dx + N(x,y)\,dy = 0$ to be exact is given by

1. $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$
2. $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$
3. $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial x}$
4. $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial y}$

Options :

19088932097. 1

19088932098. 2

19088932099. 3

19088932100. 4

Question Number : 111 Question Id : 1908898052 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The general solution of $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 6y = 0$ is given by

1. $y(x) = C_1e^{-3x} + C_2e^{3x}$
2. $y(x) = C_1e^{-3x} + C_2e^{-2x}$
3. $y(x) = C_1e^{-2x} + C_2e^{3x}$
4. $y(x) = C_1e^{-2x} + C_2e^{2x}$

Options :

19088932101. 1

19088932102. 2

19088932103. 3

19088932104. 4

Question Number : 112 Question Id : 1908898053 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The solution of the differential equation $\frac{dy}{dt} = ky,\ k > 0$ is given by

1. $y(t) = C e^{kt}$
2. $y(t) = Ce^{-kt}$
3. $y(t) = C e^{2kt}$
4. $y(t) = C e^{-2kt}$

Options :

19088932105. 1

19088932106. 2

19088932107. 3

19088932108. 4

Question Number : 113 Question Id : 1908898054 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A particular integral of the differential equation $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 4y = 3x + 2$ is given by

1. $y_p(x) = -\frac{3}{4}x - \frac{1}{16}$
2. $y_p(x) = \frac{1}{16}x - \frac{3}{4}$
3. $y_p(x) = -\frac{3}{4}x + \frac{1}{16}$
4. $y_p(x) = \frac{3}{4}x - \frac{1}{16}$

Options :

19088932109. 1

19088932110. 2

19088932111. 3

19088932112. 4

Question Number : 114 Question Id : 1908898055 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A first order differential equation of the form $\frac{dy}{dx} + P(x)y = Q(x)y^n$, where n is a real number is called

1. Lagrange Equation
2. Bernoulli Equation
3. Laplace Equation
4. Wave Equation

Options :

19088932113. 1

19088932114. 2

19088932115. 3

19088932116. 4

Question Number : 115 Question Id : 1908898056 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the interval of differencing being unity and Δ be the forward difference operator, then for constants a and b, the value of $\Delta\left(ab^x\right)$ is given by

1. $ab^x\,(b-1)$
2. $a^x b\,(b-1)$
3. $ab^x\,(a-1)$
4. $a^x b\,(a-1)$

Options :

19088932117. 1

19088932118. 2

19088932119. 3

19088932120. 4

Question Number : 116 Question Id : 1908898057 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is a method for numerical integration?

1. Bisection Method
2. Trapezoidal Rule
3. Interpolation
4. Extrapolation

Options :

19088932121. 1

19088932122. 2

19088932123. 3

19088932124. 4

Question Number : 117 Question Id : 1908898058 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is a method to solve simple non-linear equations by numerical method

1. Lagrange Method
2. Bolzano Weistras Method
3. Newton Raphson Method
4. Minimum distance method

Options :

19088932125. 1

19088932126. 2

19088932127. 3

19088932128. 4

Question Number : 118 Question Id : 1908898059 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of $\lim_{x \to -1} \frac{x^{10} - 1}{x + 1}$ is given by

1. 10
2. 0
3. ∞
4. - 10

Options :

19088932129. 1

19088932130. 2

19088932131. 3

19088932132. 4

Question Number : 119 Question Id : 1908898060 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let f be a function which is twice differentiable at $x = c$ and $f'(c) = 0$. If $f''(c) > 0$, then

1. f has relative minimum at $x = c$
2. f has relative maximum at $x = c$
3. f has neither relative maximum nor relative minimum at $x = c$
4. f has relative maximum at $x = 0$

Options :

19088932133. 1

19088932134. 2

19088932135. 3

19088932136. 4

Question Number : 120 Question Id : 1908898061 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let f be the differentiable on (a,b) and continuous on $[a,b]$. Then there is at least one c in (a,b) such that $f'(c) = \frac{f(b) - f(a)}{b - a}$. This is the statement of

1. Fundamental Theorem of Calculus
2. Fundamental Theorem of Algebra
3. Mean-Value Theorem
4. Rolle's Theorem

Options :

19088932137. 1

19088932138. 2

19088932139. 3

19088932140. 4