PREVIEW QUESTION BANK

Module Name : STATISTICAL SCIENCE-ENG
Exam Date : 09-Jul-2023 Batch : 10:00-12:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	1301	Olsen method is used for phosphorus estimation in : 1. Acidic soil 2. Neutral to alkali soil 3. Saline soils 4. Black soil A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	
Objective Question				
2	1302	The agency started with the responsibility of buffer stocking is : 1. BSI 2. IFFCO 3. AGMARK 4. Food Corporation of India A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	
Objective Question				
3	1303	Coating urea with which of the following has been found to increase the yield of crops ? 1. LIME 2. Neem OIL 3. Charcoal 4. Cowdung	4.0	

		A1 : 1 A2 : 2 A3 : 3 A4 : 4	

Objective Question

4	1304	The headquarters of Food and Agricultural Organisation are located in : 1. Canberra 2. Hyderabad 3. Rome 4. New York A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

5	1305	Parbhat is an early variety of : 1. Wheat 2. Rice 3. Maize 4. Pigeon pea A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

6	1306		4.0

In which state did Dr. Mansukh Mandaviya inaugurate IFFCO Nano Urea Liquid Plants at Aonla and Phulpur ?

1. Andhra Pradesh
2. Arunachal Pradesh
3. Uttar Pradesh
4. Maharashtra

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

7	1307	Which state became India's top vegetable producer in 2022 ? 1. Uttar Pradesh 2. Maharashtra 3. West Bengal 4. Madhya Pradesh A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

8	1308	The term 'regur' refers to : 1. Black cotton soils 2. Red and yellow soils 3. Laterite soils 4. Deltaic alluvial soils A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

9	1309	What is the causal organism of the downy mildew of bajra ? 1. S. graminicola (Sclerospora) 2. C. fusiformis 3. Agrobacterium tumefaciens 4. Erwinia amylovora A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

10	1310	Kisan Credit Card (KCC) was introduced in India in : 1. September 1998 2. October 1998 3. July 1998 4. August 1998 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

11	1311	NABARD was established on the recommendations of : 1. B. Shivaraman Committee 2. Gupta and Kapoor Committee 3. Rai and Bansal Committee 4. Ramasubramanian Committee A1 : 1 A2 : 2 A3 : 3	4.0

A4 : 4

Objective Question

12 | 1312 | 4.0

Ginger is propagated by means of :

1. Rhizomes
2. Corms
3. Tubers
4. Stem

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

13 | 1313 | 4.0

The harmonic mean of {(a)/(1-ab)} and {(a)/(1+ab)} is equal to :

1. (a/b)
2. a
3. (a)/(1-ab)
4. 1/a

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

14 | 1314 | 4.0

If X is random Poisson variate such that P(X=1) = P(X=2). What is the P(X=4) ?

1. $(5e^{-2})/6$
2. $(2e^{-2})/2$
3. $(e^{-2})/3$
4. $(2e^{-2})/3$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

15 | 1315 | 4.0

The mean deviation from the mean m in a normal distribution with variance v^2 is approximately :

1. $(4/5)v$
2. $(3/5)v$
3. $(4/9)v$
4. $(1/5)v$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

16 | 1316 | 4.0

The difference between an estimate and the parameter is called :

1. Sampling error
2. Random error
3. Probability error
4. Non-sampling error

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

17 | 1317 | 4.0

If n is the number of treatments and r is the number of replications, what is the error degrees of freedom in RBD ?

1. r-1
2. n-1
3. n*r-1
4. (n-1)*(r-1)

		A1 : 1 A2 : 2 A3 : 3 A4 : 4	
Objective Question			
18	1318	What is the probability of getting a head and a tail in a toss of two coins ? 1. 0 2. 1 3. 0.25 4. 0.5 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0
Objective Question			
19	1319	A random variable X has binomial distribution with n=10 and q=0.3, then variance of X is : 1. 21 2. 2.1 3. 7 4. 3 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0
Objective Question			
20	1320		4.0

		In the Poisson probability distribution, if the value of λ is integer then the distribution will be : 1. Bimodal 2. Unimodal 3. Positive modal 4. Negative modal A1 : 1 A2 : 2 A3 : 3 A4 : 4	
Objective Question			
21	1321	Chose the correct answer : 1. Reject H_0 when it is false is Type-I error 2. Reject H_0 when it is true is Type-II error 3. Reject H_0 when it is false is Type-II error 4. Reject H_0 when it is true is Type-I error A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0
Objective Question			
22	1322	Consider a hypothesis H_0 where $\phi_0 = 5$ against H_1 where $\phi_1 > 5$. The test is : 1. Right tailed 2. Left tailed 3. Center tailed 4. Cross tailed A1 : 1 A2 : 2 A3 : 3	4.0

A4 : 4

Objective Question

23 | 1323 | 4.0

If I conduct a research and choose for my sample whoever walks by the mall, that is an example of..... :

1. Purposive sampling
2. Snowball sampling
3. Random sampling
4. Convenience sampling

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

24 | 1324 | 4.0

If the Z-score of normal distribution is 2.5, the mean of the distribution is 45 and the standard deviation is 3, then the value of X for a normal distribution is:

1. 42
2. 52.5
3. 47
4. 3

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

25 | 1325 | 4.0

For a set of 200 observations on a certain random variable X, the mean and standard deviation are 65.7 and 4.4 respectively. However on scrutinizing the data it is found that two observations, which should be correctly read as 71 and 83, had been wrongly recorded as 91 and 80. Obtain the correct values of the mean and the standard deviation.

1. mean = 65.5 and s.d.= 4.2
2. mean = 65.8 and s.d.= 4.8
3. mean = 65.1 and s.d= 4.4
4. mean = 65.0 and s.d.= 4.2

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

26	1326	Suppose three dice are rolled. Under the condition that no two show the same face, what is the probability that one of the faces is an ace? 1. $\frac{1}{4}$ 2. $\frac{1}{2}$ 3. $\frac{1}{3}$ 4. $\frac{1}{6}$	4.0

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

27	1327	Three points are taken at random on the circumference of a circle. What is the probability that they will all lie in a semicircle? 1. $\frac{1}{3}$ 2. $\frac{1}{4}$ 3. $\frac{3}{4}$ 4. $\frac{2}{3}$	4.0

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

28	1328	Let Y be the number of successes in n independent repetitions of a random experiment having probability of success p= 2/3. If n= 3, compute P (2 ≤ Y). 1. $\frac{20}{27}$ 2. $\frac{21}{27}$ 3. $\frac{22}{27}$ 4. $\frac{23}{27}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

29	1329	Let the moment generating function (m.g.f) of a random variable is of the form $M_x(t)=(0.4e^t+0.6)^t$. Find the mean and variance of a random variable Y=3X+2. 1. E(Y) =9.4 and V(Y) = 17.28 2. E(Y) =9.6 and V(Y) = 17.26 3. E(Y) =9.4 and V(Y) = 17.26 4. E(Y) =9.6 and V(Y) = 17.28 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

30	1330		4.0

The skewness in a binomial distribution will be zero, if :

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

31 1331 4.0

Let A and B are any two events and P(A)= p_1 , P(B)= p_2 and P(A ∩ B)= p_3. What is the value of $P\left(\frac{\overline{A}}{\overline{B}}\right)$?

1. $\frac{1-p_1-p_2+p_3}{1-p_3}$
2. $\frac{p_1}{p_2}$
3. $\frac{1-p_1-p_2+p_3}{1-p_2}$
4. $\frac{1-p_1-p_2+p_3}{1-p_1}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

32 1332 4.0

		The probability that both S and T occur, the probability that S occurs and T does not, and the probability that T occurs and S does not are all equal to p. The probability that either S or T occurs is 1. p 2. 2p 3. 3p 4. $3p^2$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	

Objective Question

33	1333	If X and Y are independent Poisson variates having means 1 and 3 respectively, find the variance of 3X+Y. 1. 6 2. 9 3. 12 4. 18 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

34	1334		4.0

Let the m.g.f of a random variable X is of the form $M_x(t) = \exp\{3(e^t-1)\}$. What is the value of kurtosis coefficient β_2 ?

1. $\frac{1}{3}$
2. $\sqrt{\frac{1}{3}}$
3. $\sqrt{\frac{10}{3}}$
4. $\frac{10}{3}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

35 | 1335 | 4.0

The list of all sampling units in the population is known as :

1. Frame
2. Cluster
3. Strata
4. Sub population

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

36 | 1336 | 4.0

Completely randomized designs are suitable in the situation(s) when :

1. all experimental units are homogeneous
2. the units are likely to be destroyed during experimentation
3. all experimental units are heterogeneous
4. experimental units are in different slope

		A1 : 1 A2 : 2 A3 : 3 A4 : 4	

Objective Question

37	1337	Uniformity trials are conducted to : 1. Estimate the standard error of the treatment means 2. Reduce the experimental error 3. Have an idea about nature and extent of fertility gradient 4. To reduce the chance of bias in the experiment A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

38	1338	In the field layout of a randomized block design, the blocks are formed in the direction : 1. parallel to fertility gradient 2. perpendicular to fertility gradient 3. diagonally to fertility gradient 4. in a random manner A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

39	1339		4.0

Replication in an experiment provides :

1. the estimate of experimental error
2. impetus to the treatments
3. check to the variation in soil fertility
4. Bias reduction

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

40 | 1340 | 4.0

In a completely randomized design, there are five treatments T_1, T_2, T_3, T_4 and T_5. T_1, T_2, T_3 and T_4 are replicated 3, 4, 5 and 6 times respectively. If the error degrees of freedom is 19, then T_5 is replicated :

1. 3 times
2. 4 times
3. 5 times
4. 6 times

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

41 | 1341 | 4.0

In case of a randomized block design with 5 treatments, the mean sum of squares due to error is 2 and the F-value for testing significance of treatment differences is 12.5, then the treatment sum of squares will be :

1. 25
2. 50
3. 75
4. 100

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

42 | 1342 | 4.0

An experiment is conducted in a Randomized block design with five treatments in four replications, the standard error of the difference between two treatments means are (MSE is the error mean square)

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

43 | 1343 | 4.0

In a layout of a randomized block design with 7 treatments, each replicated 5 times, the needed 35 experimental units will be grouped into :

1. 7 blocks of 5 plots each
2. 5 blocks of 7 plots each
3. 35 blocks of 1 plot each
4. 1 block containing 35 plots

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

44 | 1344 | 4.0

If a constant 35 is added to each of the value of X and Y, the regression coefficient is :

1. increased by 35
2. $\frac{1}{35}^{th}$ of the original regression coefficient
3. reduced by 35
4. same as the original regression coefficient

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

45 | 1345 | 4.0

In a normal distribution 10.03% of the items are under 35kg weight and 89.97% of the items are under 80kg weight. What are the mean and standard deviation of the distribution ?

1. mean= 47.5 and sd= 17.57
2. mean= 47.5 and sd = 21.48
3. mean=52.5 and sd=17.57
4. mean=52.5 and sd=21.48

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

46 | 1346 | 4.0

The point of inflexion of Normal (μ,σ^2) curve are :

1. $\mu \pm \sigma$
2. $\mu \pm 2\sigma$
3. $\mu \pm 3\sigma$
4. $\mu \pm 0.3\sigma$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

47 | 1347 | 4.0

In a normal curve, 99% of the observations are included in the range

1. $\bar{x} \pm 0.67$
2. $\bar{x} \pm 1.96$
3. $\bar{x} \pm 2.0$
4. $\bar{x} \pm 2.58$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

48 | 1348 | 4.0

In Simple Random Sampling with replacement (SRSWR) the variance of $\overline{y_n}$ (with standard notation) is given by :

1. $\frac{N-1}{nN}S^2$
2. $\frac{N-n}{nN}S^2$
3. $\frac{N-1}{N}S^2$
4. $\frac{N-n}{N}S^2$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

49 | 1349 | 4.0

In a Poisson Distribution, if mean = e, then P(x) is given by _____.

1. exp(x-e)/x!
2. exp(e-x)/e!
3. exp(x-e)/e!
4. exp(-x-e)/x!

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

50 | 1350 | 4.0

When Viswanath plays chess, he wins with probability 0.80, loses with probability 0.20. Assume independence, find the probability that Viswanath's first win happens when he plays his third game.

1. 0.8
2. 0.2
3. 0.032
4. 0.512

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

51 | 1351 | 4.0

In the straight line graph of the linear equation Y = a + bX, slope is horizontal if :

1. $b \neq 0$
2. $b = 1$
3. $b = 0$
4. $a = b$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

52 | 1352 | 4.0

Which of the following is not a characteristic of the normal distribution ?

1. the mean is always zero
2. the area under the curve equals one
3. the mean, median and mode are equal
4. it is a symmetrical distribution

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

53 | 1353 | 4.0

In simple linear regression, the number of unknown constants are :

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

54 | 1354 | 4.0

A multiple-choice test has 30 questions. There are 4 choices for each question. A student who has not studied for the test decides to answer all the questions randomly by guessing the answer to each question. Which of the following probability distributions can be used to calculate the student's chance of getting at least 20 questions right ?

1. Uniform distribution
2. Exponential distribution
3. Poisson distribution
4. Binomial distribution

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

55	1355	Which of the following p-values will lead us to reject the null hypothesis if the significance level of the test is 5% ? 1. 0.15 2. 0.10 3. 0.06 4. 0.046 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

56	1356	The probability of selecting an item in probability sampling, from the population is : 1. Equal to zero 2. Size of population 3. Size of sample 4. Between zero and one A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

57	1357		4.0

		The method of least squares dictates that we choose a regression line where the sum of the square of deviations of the points from the line is : 1. Maximum 2. Minimum 3. Zero 4. Negative A1 : 1 A2 : 2 A3 : 3 A4 : 4	
Objective Question			
58	1358	Increasing the sample size has the following effect upon the sampling error : 1. It increases the sampling error 2. It increases the standard error of the estimate 3. It decreases the sampling error 4. It has no effect A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0
Objective Question			
59	1359	A variable that can assume any value between two given points is called : 1. Uncertain random variable 2. Irregular random variable 3. Discrete random variable 4. Continuous random variable A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

60 | 1360 | 4.0

How often does the Census Bureau take a complete population count ?

1. Every ten years
2. Every five years
3. Every two years
4. Every year

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

61 | 1361 | 4.0

Which of the following is the sequence alignment tool ?

1. BLAST
2. PRINT
3. PROSITE
4. PIR

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

62 | 1362 | 4.0

Which of the following is not a bioinformatics tool ?

1. BLAST
2. ClustalW
3. PCR
4. Phylip

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

63	1363	Which of the following is used between CPU and RAM to speed up the processing power of a CPU? 1. Virtual Memory 2. Cache Memory 3. DRAM 4. Flash Memory A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

64	1364	What do you call a computer on a network that requests files from another computer ? 1. A client 2. A host 3. A router 4. A web server A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

65	1365	"www" stands for : 1. World Wide Web 2. World Wide Wares 3. World Wide Wait 4. World Wide War A1 : 1	4.0

A2 : 2

A3 : 3

A4 : 4

Objective Question

66	1366	A program that neither replicates or copies itself, but does damage or compromises the security of the computer. Which 'Computer Virus' is it ? 1. Joke Program 2. Worm 3. Trojan 4. Hoax A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

67	1367	Microsoft Word is a _____. 1. Computer Hardware Program 2. Computer Non-application Program 3. Computer Application Program 4. Website A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0

Objective Question

68	1368	Which of the following command is NOT present in Quick Access Toolbar ? 1. Draw Table 2. E-mail 3. Print Preview 4. Prepare	4.0

		A1 : 1 A2 : 2 A3 : 3 A4 : 4	
Objective Question			
69	1369	To select text by shading as you drag the mouse arrow over the text is known as : 1. Clip art 2. To highlight 3. To fetch 4. To decode A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0
Objective Question			
70	1370	'.BAT' extension refers usually to what kind of file ? 1. Compressed Archive file 2. System file 3. Audio file 4. Backup file A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0
Objective Question			
71	1371		4.0

A personal computer's primary memory, commonly known as its main memory, consists of ?

1. RAM
2. ROM
3. Both RAM and ROM
4. Cache Memory

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

72 | 1372 | 4.0

The file type _____ indicates the file is a Word document.

1. msw
2. wrd
3. wor
4. doc

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

73 | 1373 | 4.0

Let a and b be two real numbers with $a, b > 0$ and $a < b$, then which of the following is true

1. $\sqrt{a} < \sqrt{b}$
2. $\sqrt{b} < \sqrt{a}$
3. $b^2 < a^2$
4. $a^2 - b^2 > 0$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

74 | 1374 | 4.0

If c is any real number and $0 < c < 1$, then :

1. $c < c^2$
2. $c^2 < c$
3. $c^2 < c^3$
4. $c^3 = 1$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

75 | 1375 | 4.0

Let (a_n) and (b_n) are two convergent sequences of real numbers, then which of the following is always true ?

1. $(a_n) + (b_n)$ is convergent
2. $\frac{(a_n)}{(b_n)}$ is always divergent
3. $\frac{(b_n)}{(a_n)}$ is always convergent
4. $(a_n) - (b_n)$ is not convergent

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

76 | 1376 | 4.0

Let x and y be two real numbers, then which of the following is always true ?

1. $|x-y| \leq |x| - |y|$
2. $|x-y| \leq |x| + |y|$
3. $|x+y| \leq |x| - |y|$
4. $|x+y| \geqslant |x| + |y|$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

77 | 1377 | 4.0

Let $(a_n) = n^2$ and $(b_n) = 1 + \frac{1}{n^2}$ be sequence of real numbers, then :

1. Both (a_n) and (b_n) are convergent
2. Both (a_n) and (b_n) are divergent
3. (a_n) is convergent and (b_n) is divergent
4. (a_n) is divergent and (b_n) is convergent

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

78 | 1378 | 4.0

Let $(a_n) = \frac{1}{n^2}$ be sequence of real numbers, then the sequence is :

1. Convergent and limit is 1
2. Convergent and limit is 0
3. Divergent
4. Convergent and limits are 0 and 1

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

79 | 1379 | 4.0

Let $\sum_{n=1}^{\infty}(-1)^n a_n = \sum_{n=1}^{\infty}(-1)^n \frac{1}{\sqrt{n}}$ be a series, then :

1. $\sum_{n=1}^{\infty}(-1)^n a_n$ is divergent
2. $\sum_{n=1}^{\infty}(a_n)^2$ is absolutely convergent
3. $\sum_{n=1}^{\infty}(a_n)^3$ is convergent
4. $\sum_{n=1}^{\infty} a_n$ is convergent series

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

80 | 1380 | 4.0

Let $\sum_{n=1}^{\infty} a_n$ be any series of real numbers, then which of the following statement is true ?

1. If $\sum_{n=1}^{\infty} a_n$ is absolutely convergent then it is convergent
2. If $\sum_{n=1}^{\infty} a_n$ is convergent then it is absolutely convergent
3. If $\sum_{n=1}^{\infty} a_n$ is absolutely convergent then it is conditionally convergent
4. If $\sum_{n=1}^{\infty} a_n$ is conditionally convergent then it is absolutely convergent

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

81 | 1381 | 4.0

The sum of $\frac{1}{1\times2}+\frac{1}{2\times3}+\frac{1}{3\times4}+...+\frac{1}{9\times10}$ is :

1. $\frac{10}{9}$
2. $\frac{9}{10}$
3. $\frac{5}{6}$
4. $\frac{6}{5}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

82 | 1382 | 4.0

Let z_1 and z_2 be two complex numbers, then :

1. $\left|\frac{z_1}{z_2}\right| < \frac{|z_1|}{|z_2|}$ for $|z_2| \neq 0$
2. $\left|\frac{z_1}{z_2}\right| \neq \frac{|z_1|}{|z_2|}$
3. $|z_1\, z_2| = |z_1|\,|z_2|$
4. $|z_1\, z_2| < |z_1|\,|z_2|$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

83 | 1383 | 4.0

Polar form of the complex number $z = -4 + i\,4\sqrt{3}$ is :

1. $8\,(\cos\frac{\pi}{3} + i\,\sin\frac{\pi}{3})$
2. $8\,(\cos\frac{\pi}{6} + i\,\sin\frac{\pi}{6})$
3. $8\,(\cos\frac{2\pi}{3} + i\,\sin\frac{2\pi}{3})$
4. $8\,(\cos\frac{5\pi}{6} + i\,\sin\frac{5\pi}{6})$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

84 | 1384 | 4.0

Let A and B be two non-empty sets, then $(A \cup B)^C$ is equal to :

1. $(A \cap B)^C$
2. $A^C \cap B^C$
3. $A^C \cup B^C$
4. $A \cup B$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

85 | 1385 | 4.0

Let A and B be two matrices and γ be any scalar, then :

1. $(A^T)^T = A^T$
2. $(AB)^T = A^T B$
3. $(rA)^T = r^T A$
4. $(A + B)^T = A^T + B^T$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

86 | 1386 | 4.0

Let A and B be two invertible matrices, then which of the following is true ?

1. A^{-1} may not invertible
2. $(A^{-1})^{-1} = A$
3. $(AB)^{-1} = A^{-1}B$
4. $(A^{-1})^{-1} = A^{-1}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

87 | 1387 | 4.0

Let $A = \begin{bmatrix} 1 & 2 & 0 & -1 \\ 2 & 6 & -3 & -3 \\ 3 & 10 & -6 & -5 \end{bmatrix}$, then rank of matrix A is :

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

88 | 1388 | 4.0

Let W_1 and W_2 are two subspaces of a vector space V over the field F, then :

1. $W_1 + W_2$ not subspace of V
2. $W_1 \cup W_2$ is always subspace of V
3. $W_1 \cap W_2$ is always subspace of V
4. W_1 and W_2 are always orthogonal

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

89 | 1389 | 4.0

Let $B = \begin{bmatrix} 5 & -9 & 6 \\ 0 & 2 & 3 \\ 0 & 0 & 7 \end{bmatrix}$, then its reduced echelon form is :

1. $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$
2. $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$
3. $\begin{bmatrix} 5 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$
4. $\begin{bmatrix} 1 & -9 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

90 | 1390 | 4.0

The eccentricity of the parabola is :

1. 1
2. 0
3. Less than 1
4. Greater than 1

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

91 1391 4.0

Let $x^2 = \frac{25}{2}y$ the equation of a parabola, then the equation of its directrix is given by

1. $y = \frac{25}{2}$
2. $y = -\frac{25}{4}$
3. $y = -\frac{25}{8}$
4. $y = \frac{25}{8}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

92 1392 4.0

The series $\sum_{n=1}^{\infty}\frac{1}{n}$ is :

1. Convergent
2. Divergent
3. Absolutely Convergent
4. Conditionally Convergent

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

93 1393 4.0

Let z_1 and z_2 be two complex numbers, then dot product of z_1 and z_2 is :

1. $|z_1||z_2|$
2. $|z_1||z_2|\sin\theta$
3. $|z_1||z_2|\cos\theta$
4. $|z_1||z_2|\tan\theta$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

94 | 1394 | 4.0

The value of $\frac{5+5i}{3-4i}+\frac{20}{4+3i}$ is given by :

1. $3-i$
2. $1+i$
3. $\frac{5}{2}-\frac{i}{2}$
4. $-2+9\,i$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

95 | 1395 | 4.0

Let $\mathbb{R}^n = V$ is a vector space over the field of real numbers, then which of the following is a subspace ?

1. $W=\{(a_1,a_2,\cdots,a_n)|\ \sum_{i=1}^{n} a_i = 0\}$
2. $W=\{(a_1,a_2,\cdots,a_n)|\ a_1\,a_n > 0\}$
3. $W=\left\{(a_1,a_2,\cdots,a_n)|\ \frac{a_1}{a_2}=\lambda;\ \lambda\in\mathbb{R}\right\}$
4. $W=\{(a_1,a_2,\cdots,a_n)|\ a_i \geq 0\ \forall\ i=1,\ 2,3,\cdots,n\}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

96 | 1396 | 4.0

The necessary condition of a convergent sequence is :

1. Bounded
2. Having more than one limit
3. Monotonic
4. Not Cauchy

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

97 | 1397 | 4.0

If $\lim_{x \to -a} \frac{x^9+a^9}{x+a} = 9$, then the possible values of a are given by :

1. $a = \pm 1$
2. $a = \pm 9$
3. $a = \pm 3$
4. $a = \pm 8$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

98 | 1398 | 4.0

The vertical asymptote for $f(x) = \frac{3x+5}{7-x}$ is given by :

1. $x = 7$
2. $x = 3$
3. $x = 5$
4. $x = -1$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

99 | 1399 | 4.0

A toy manufacturer produces an inexpensive doll (flopsy) and an expensive doll (mopsy) in units of x hundreds and y hundreds respectively. Suppose it is possible to produce the doll in such a way that $y = \frac{82-10x}{10-x}, 0 \le x \le 8$ and that the company receives twice as much for selling a mopsy doll as for selling a flopsy doll. The level of production for both flopsy and mopsy dolls for which the total revenue derived from selling these dolls is maximized is given by :

1. Flopsy: 40 and Mopsy: 70
2. Flopsy: 700 and Mopsy: 400
3. Flopsy: 400 and Mopsy: 700
4. Flopsy:70 and Mopsy: 40

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

100 | 1400 | 4.0

If $x = a(\cos t + t \sin t)$ and $y - a(\sin t - t \cos t)$, then the value of $\frac{d^2y}{dx^2}$ is given by :

1. $\frac{at}{\cos^3 t}$
2. $\frac{1}{at \cos^3 t}$
3. $\frac{at}{\sin^3 t}$
4. $\frac{1}{at \sin^3 t}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

101 1401 4.0

If $\theta = t^n e^{-\frac{r^2}{4t}}$, then the value of n that will make $\frac{1}{r^2}\frac{\partial}{\partial r}\left(r^2\frac{\partial \theta}{\partial r}\right) = \frac{\partial \theta}{\partial t}$ is given by :

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

102 1402 4.0

If $z = f(x, y)$ and $x = e^u + e^{-v}$ and $y = e^{-u} - e^v$, then :

1. $\frac{\partial z}{\partial u} - \frac{\partial z}{\partial v} = x\frac{\partial z}{\partial x} - y\frac{\partial z}{\partial y}$
2. $\frac{\partial z}{\partial u} + \frac{\partial z}{\partial v} = x\frac{\partial z}{\partial x} - y\frac{\partial z}{\partial y}$
3. $\left(\frac{\partial z}{\partial u} + \frac{\partial z}{\partial v}\right)^2 = x\frac{\partial z}{\partial x} - y\frac{\partial z}{\partial y}$
4. $\left(\frac{\partial z}{\partial u} - \frac{\partial z}{\partial v}\right)^2 = x\frac{\partial z}{\partial x} - y\frac{\partial z}{\partial y}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

103 1403 4.0

The value of $\int \cos^{-1}(2x)dx$ is given by :

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

104 1404 4.0

The area under the curve $y - \cos x$ on $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ is given by :

1. $\frac{1}{2}$ square units
2. 2 square units
3. π square units
4. $\frac{\pi}{4}$ square units

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

105 1405 4.0

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

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

106 | 1406 | 4.0

The solution of the differential equation $\cos(x+y)dx + [3y^2 + 2y + \cos(x+y)]dy = 0$ is given by :

1. $\sin(x+y) + y^3 + y^2 = C$
2. $\sin(x-y) + y^3 + y^2 = C$
3. $\sin(x+y) + x^3 + x^2 = C$
4. $\sin(x-y) + x^3 + x^2 = C$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

107 | 1407 | 4.0

The solution of the differential equation $xy'' + y' = 4x$ is given by :

1. $y = x^3 + C_1 \ln x + C_2$
2. $y = x^2 + C_1 \ln x + C_2$
3. $y = e^x + C_1 \ln x + C_2$
4. $y = e^{-x} + C_1 \ln x + C_2$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

108 1408 4.0

The solution of the differential equation $\frac{d^2x}{dt^2} + 6\frac{dx}{dt} + 9x=0$ is given by :

1. $x=(C_1+C_2t)e^{3t}$
2. $x=(C_1+C_2t)e^{-3t}$
3. $x=(C_1+C_2t)e^{5t}$
4. $x=(C_1+C_2t)e^{-5t}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

109 1409 4.0

If Δ and ∇ be the first forward difference and first backward difference operator respectively, then the expression $(1+\Delta)(1+\nabla)$ is equivalent to :

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

110 1410 4.0

		The process of evaluating a definite integral from a set of tabulated values of the integrand is called: 1. Numerical Integration 2. Extrapolation 3. Finite Difference 4. Interpolation A1 : 1 A2 : 2 A3 : 3 A4 : 4	
Objective Question			
111	1411	The formula to solve simple non-linear equation $f(x) = 0$ by Newton's Raphson Method is given by : 1. $x_{n+1} = x_n - \frac{f'(x_n)}{f(x_n)}$ 2. $x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$ 3. $x_{n+1} = f(x_n) - \frac{f''(x_n)}{f'(x_n)}$ 4. $x_{n+1} = f(x_n) - \frac{f'(x_n)}{f''(x_n)}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0
Objective Question			
112	1412		4.0

If A is any real number and r is positive rational number, then the value of $\lim_{x\to+\infty} \frac{A}{x^r}$ is

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

113 1413 4.0

Suppose the function f is continuous at the point P(c, f(c)). Then, the graph of f has a vertical tangent at P if :

1. $\lim_{x\to c^-} f'(x) = +\infty$ and $\lim_{x\to c^+} f'(x) = +\infty$
2. $\lim_{x\to c^-} f'(x) = +\infty$ and $\lim_{x\to c^+} f'(x) = -\infty$
3. $\lim_{x\to c^-} f'(x) = -\infty$ and $\lim_{x\to c^+} f'(x) = +\infty$
4. $\lim_{x\to c^-} f'(x) = 0$ and $\lim_{x\to c^+} f'(x) = +\infty$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

114 1414 4.0

The value of $\lim_{x\to+\infty}\sqrt[3]{\frac{3x+5}{6x-8}}$ is given by :

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

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

115 1415 4.0

If the function $f(x, y)$ has mixed second order partial derivatives f_{xy} and f_{yx} that are continuous in an open disk containing (x_0, y_0), then :

1. $f_{yx}(x_0, y_0) \neq f_{xy}(x_0, y_0)$
2. $f_{yx}(x_0, y_0) = f_{xy}(x_0, y_0)$
3. $f_{yx}(x_0, y_0) > f_{xy}(x_0, y_0)$
4. $f_{yx}(x_0, y_0) < f_{xy}(x_0, y_0)$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

116 1416 4.0

Suppose f is continuous on [a, b] and differentiable on (a, b). If $f(a) = f(b)$, then there exists at least one number c between a and b such that $f'(c) = 0$ is the statement of

1. Lagrange's mean value theorem
2. Rolle's Theorem
3. Fundamental theorem of calculus
4. Fundamental theorem of algebra

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

117 1417 4.0

If f is continuous on an open interval containing a value x_0, and if f changes the direction of its concavity at the point $(x_0, f(x_0))$, then f has :

1. a relative maximum at x_0
2. a relative minimum at x_0
3. an inflection point at x_0
4. a saddle point at x_0

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

118 1418 4.0

The value of $\int_0^6 f(x)dx$ if $f(x)=\begin{cases} x^2, x<2 \\ 3x-2, x \geq 2 \end{cases}$ is given by :

1. 1
2. 0
3. $\frac{1}{3}$
4. $\frac{128}{3}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

119 | 1419 | 4.0

Let f be a function such that f and all its derivatives exist in an open interval I containing c, then the Taylor's series of f at $x = c$ is given by :

1. $f(c) + \frac{f'(c)}{1!}x + \frac{f''(c)}{2!}x^2 + \ldots$
2. $f(c) - \frac{f'(c)}{1!}(x-c) + \frac{f''(c)}{2!}(x-c)^2 + \ldots$
3. $f(c) + \frac{f'(c)}{1!}(x-c) + \frac{f''(c)}{2!}(x-c)^2 + \ldots$
4. $f(c) - \frac{f'(c)}{1!}x + \frac{f''(c)}{2!}x^2 - \ldots$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

120 | 1420 | 4.0

If $\Gamma(n) = \int_0^{\infty} e^{-x} x^{n-1}\, dx,\ (n > 0)$, then the value of $\int_0^{\pi/2} \sin^n x\, dx$ is given by :

1. $\dfrac{\Gamma\left(\frac{n+1}{2}\right)}{\Gamma\left(\frac{n+2}{2}\right)}\dfrac{\sqrt{\pi}}{2}$

2. $\dfrac{\Gamma\left(\frac{n}{2}\right)}{\Gamma\left(\frac{n+1}{2}\right)}\dfrac{\sqrt{\pi}}{2}$

3. $\dfrac{\Gamma\left(\frac{n+2}{2}\right)}{\Gamma\left(\frac{n+1}{2}\right)}\dfrac{\sqrt{\pi}}{2}$

4. $\dfrac{\Gamma(n)}{\Gamma(n+1)}\dfrac{\sqrt{\pi}}{2}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4