Module Name : MSc Mathematics-E
Exam Date : 19-Sep-2020   Batch : 09:00-11:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	1	Let $(y_n)_{n=1}^{\infty}$ be an unbounded sequence of positive terms. Then which of the following statements is TRUE? A1 : $(y_n)_{n=1}^{\infty}$ diverges to $+\infty$. A2 : $(y_n)_{n=1}^{\infty}$ has a subsequence that diverges to $+\infty$. A3 : $(y_n)_{n=1}^{\infty}$ cannot have a convergent subsequence. A4 : $(y_n)_{n=1}^{\infty}$ must have a convergent subsequence.	4.0	1.00
Objective Question				
2	2	Which of the following is TRUE? A1 : Every convergent sequence of real numbers is monotone. A2 : Every monotone sequence of real numbers is convergent. A3 : Every sequence of real numbers has a bounded subsequence. A4 : Every Cauchy sequence is bounded.	4.0	1.00
Objective Question				
3	3	The function $f: \mathbb{R} \to \mathbb{R}$ defined as $f(x) = \begin{cases} x^2, if\ x \leq 1 \\ 2x-1, if\ x > 1 \end{cases}$ is A1 : Continuous at 1 but not differentiable at 1 A2 : Differentiable at 1 but not continuous at 1 A3 : Both continuous and differentiable at 1 A4 : Neither continuous nor differentiable at 1	4.0	1.00
Objective Question				
4	4		4.0	1.00

Which of the following subsets of $C[0,1] = \{f: [0,1] \to R \mid f \text{ is continuous}\}$ are subspaces of $[0,1]$?

A1: The set of all $f \in C[0,1]$ such that $f\left(\frac{1}{3}\right) = 0$.

A2: The set of all $f \in C[0,1]$ such that $f\left(\frac{1}{2}\right)$ is a rational number.

A3: The set of all $f \in C[0,1]$ such that $\int_0^1 f(t)dt = 1$

A4: The set of all $f \in C[0,1]$ such that f is not differentiable at $\frac{1}{2}$.

Objective Question

5	5	Which of the following is a linearly independent subset of $\mathbb{R}^3$?	4.0	1.00

A1: {(0,1,2),(0,-1,2),(0,0,4) }

A2: {(0,1,3),(0,1,4),(2,-1,5),(2,6,0) }

A3: {(0,0,0),(0,1,0),(0,1,1) }

A4: {(1,0,0),(1,2,0),(1,2,3) }

Objective Question

6	6	Consider the Mappings $f, g: \mathbb{R}^2 \to \mathbb{R}^2$ defined as $f(x,y) = (2x + 3y + 1, -x + y)$ and $g(x,y) = (x^2 + y, -x + y)$. Then,	4.0	1.00

A1: Both f and g are linear Mappings.

A2: f is a linear Mapping but g is not.

A3: g is a linear Mapping but f is not.

A4: Neither f nor g is a linear Mapping

Objective Question

7	7	Let $(a_n)_{n=1}^{\infty}$ be sequence given by $a_n = \begin{cases} \left(1 + \frac{1}{n}\right)^n & if \quad n \quad is\ odd \\ 3 - \frac{1}{n} & if \quad n \quad is\ even \end{cases}$. Then	4.0	1.00

A1: $\text{limSup}_{n\to\infty} a_n = e$ and $\text{liminf}_{n\to\infty} a_n = 3$

A2

		: $\limsup_{n\to\infty} a_n = e \liminf_{n\to\infty} a_n = 1$ A3 : $\limsup_{n\to\infty} a_n = 3 \liminf_{n\to\infty} a_n = 1$ A4 : $\limsup_{n\to\infty} a_n = 3 \liminf_{n\to\infty} a_n = e$		

Objective Question

8	8	Let (X,d) be any metric space. Which of the following is FALSE ? A1 : Every compact subset of X is complete. A2 : Every compact subset of X is closed A3 : Every finite subset of X is both compact and connected. A4 : Every infinite subset of X has a limit point in X.	4.0	1.00

Objective Question

9	9	If $a_n = \frac{n^2}{n^5+1}$ and $b_n = \frac{1}{3^n}$ for all $n \in N$ then A1 : Both $\sum_{n=1}^{\infty} a_n$ and $\sum_{n=1}^{\infty} b_n$ are convergent. A2 : $\sum_{n=1}^{\infty} a_n$ is convergent but $\sum_{n=1}^{\infty} b_n$ is divergent. A3 : $\sum_{n=1}^{\infty} a_n$ is divergent but $\sum_{n=1}^{\infty} b_n$ is convergent. A4 : Both $\sum_{n=1}^{\infty} a_n$ and $\sum_{n=1}^{\infty} b_n$ are divergent.	4.0	1.00

Objective Question

10	10	The number of analytic functions $f: C \to C$ which vanishes at every points on the unit circle $\{z \in C : \ |Z| = 1\}$is [where C is the set of all complex numbers.] A1 : Infinite A2 : 0 A3 : 1 A4 : 2	4.0	1.00

Objective Question

11	11	Let W be the subspace of R^3 given by $W = \{(x, y, z) \in R^3 : x + 4y + 3z = 0\}$. Then $dimW =$ A1 : 0 A2 : 1 A3 : 2 A4 : 3	4.0	1.00
Objective Question				
12	12	Which one of the following statements is TRUE? A1 : A subspace of a connected metric space is connected A2 : A subspace of a compact metric space is compact A3 : A subspace of a complete metric space is complete A4 : A subspace of a bounded metric space is bounded	4.0	1.00
Objective Question				
13	13	Let $f: R \to R$ and $g: R \to R$ be uniformly continuous mappings. Which of the following is FALSE? A1 : $f + g$ is uniformly continuous on R A2 : $f - g$ is uniformly continuous on R A3 : $3f$ is uniformly continuous on R A4 : fg is uniformly continuous on R.	4.0	1.00
Objective Question				
14	14	The value of $\lim_{x\to 0} \frac{x^{15}-1}{x^{10}-1}$ is A1 : 3/4 A2 : 3/2 A3 -3/4	4.0	1.00

		: A4: -3/2		

Objective Question

15	15	Which of the following statements is FALSE? A1: Any subgroup of an abelian group is abelian A2: Any subgroup of an non-abelian group is non-abelian A3: Any subgroup of a cyclic group is cyclic A4: Any cyclic group is abelian	4.0	1.00

Objective Question

16	16	The inverse Laplace transform $L^{-1}\left(\frac{s+1}{s^2+2s+2}\right)$ is A1: $e^{-x}\cos x$ A2: $e^{-x}\sin x$ A3: $e^{x}\cos x$ A4: $e^{x}\sin x$	4.0	1.00

Objective Question

17	17	If $A=\left\{\frac{m+n}{mn} \mid m,n\in N\right\}$ then A1: $lub\, A = 2$ and $glb\, A = 0$ A2: $lub\, A = 1$ and $glb\, A = \frac{1}{2}$ A3: $lub\, A = 1$ and $glb\, A = 0$ A4: $lub\, A = 0$ and $glb\, A = 2$	4.0	1.00

Objective Question

18	18	Consider the linear transformation $T: R^2 \to R^3$ defined as $T(x_1,x_2) = (x_1, x_1 + x_2, x_2)$, then the nullity of T is	4.0	1.00

		A1: 0 A2: 1 A3: 2 A4: 3		
Objective Question				
19	19	The function $f: \mathbb{R} \to \mathbb{R}$ defined as $f(x) = \begin{cases} x^2 \sin\frac{1}{x}, if\ x \neq 0 \\ 0, if\ x = 0 \end{cases}$ is A1: Continuous at 0 but not differentiable at 0 A2: Differentiable at 0 but not continuous at 0 A3: Neither differentiable nor continuous at 0 A4: Both differentiable and continuous at 0	4.0	1.00
Objective Question				
20	20	Let $A = \{a, b, c\}$. Then number of relations containing (a, b) and (a, c) which are reflexive and symmetric but not transitive is A1: 1 A2: 2 A3: 3 A4: 4	4.0	1.00
Objective Question				
21	21	Let $A = \{1,2,3\}$.Then number of equivalence relations containing (1,2) is A1: 1 A2: 2 A3: 3	4.0	1.00

		A4: 4		

Objective Question

22	22	Which of the following statement is FALSE? A1: The power set of any countable set is countable. A2: The Cantor set is uncountable. A3: [0,1]is uncountable. A4: If X and Y are countable sets then X x Y is countable.	4.0	1.00

Objective Question

23	23	The radius of convergence of the series $\sum_{n=1}^{\infty} z^{n!}$ Is A1: 1 A2: 0 A3: ∞ A4: e	4.0	1.00

Objective Question

24	24	The residue of the function $f(z) = \frac{e^z}{z^2}$ at the pole $z = 0$ is A1: 0 A2: 1 A3: 1/2 A4: π	4.0	1.00

Objective Question

25	25	Which of the following functions is uniformly continuous on $(0,\infty)$? A1: $f(x) = x^2$ A2: $g(x) = 2^x$	4.0	1.00

		A3: $h(x) = \sin x$ A4: $k(x) = (x-1)^2 + 1$		
Objective Question				
26	26	What is $\sum_{k=0}^{n} \binom{n}{k}$? A1: n! A2: n^n A3: 2^n A4: n^2	4.0	1.00
Objective Question				
27	27	If $\{x_n\}$ converge to l, then A1: $\{\lvert x_n \rvert\}$ converge to $\lvert l \rvert$. A2: $\{\lvert x_n \rvert\}$ will also converge to l. A3: $\{\lvert x_n \rvert\}$ converge to l, only when l=0. A4: $\{\lvert x_n \rvert\}$ need not converge.	4.0	1.00
Objective Question				
28	28	The limit superior and limit inferior of the sequence $\{x_n = (-1)^n n\}$ is A1: $-\infty$ and -1 A2: -1 and $-\infty$ A3: $-\infty$ and ∞ A4: ∞ and $-\infty$	4.0	1.00
Objective Question				
29	29	Which of the following series converge absolutely?	4.0	1.00

		A1: 1- 1/2+1/3-1/4+1/5-… A2: 1/2-2/3+3/4-4/5+⋯ A3: 1-1+ 1/2-1/2+1/3-1/3+⋯ A4: 1- 1/1!+1/2!-1/3!+1/4!-…		
Objective Question				
30	30	Which of the following is/ are true? (i) Rearrangement of series cannot converge to different limits. (ii) Rearrangement of series can converge to at most finite number of limits. (iii) Rearrangement of series can converge to any given real number. (iv) Any rearrangement of absolutely convergent series converge to a unique limit. A1: (iii) A2: (iv) A3: (iii) and (iv) A4: (ii) and (iv)	4.0	1.00
Objective Question				
31	31	$\lim_{n\to\infty}\left(1+\frac{1}{n}\right)^n$ A1: Does not exist A2: Exist and equal to 1 A3: Exist and equal to π A4: Exist and equal to e	4.0	1.00
Objective Question				
32	32	The series $\frac{1}{x+1}-\frac{1}{x+2}+\frac{1}{x+3}-\frac{1}{x+4}+\cdots$ converges for A1: Any real numbers x A2: Only for positive real numbers x A3 Non integer real numbers x	4.0	1.00

		A4: Only for negative real numbers x		

Objective Question

33	33	The function $f: Z \to Z$, defined by $f(x) = 3x^3 - x$ is A1: f is bijective A2: f is injective but not surjective A3: f is surjective but not injective A4: f is neither injective nor surjective	4.0	1.00

Objective Question

34	34	How many numbers in the range 1000-9999 end with 2? A1: 1000 A2: 1200 A3: 900 A4: 800	4.0	1.00

Objective Question

35	35	Let X and Y be sets with |X|=100 and |Y|=1000. How many bijective functions are there from X to Y? A1: 100! A2: 1000! A3: 100000 A4: 0	4.0	1.00

Objective Question

36	36	Let X and Y be non-empty sets and f a mapping of X into Y. If A and B are respectively, subsets of X and Y, then A1: $ff^{-1}(B) \subseteq B$ if and only if f is bijective A2: $ff^{-1}(B) = B$	4.0	1.00

		A3: $ff^{-1}(B) = B$ if and only if f is surjective. A4: $ff^{-1}(B) = B$ if and only if f is injective		

Objective Question

37	37	Let f:[a,b]→**R** be a monotonic function. Then A1: f is continuous. A2: f is discontinuous at at most two points. A3: f is discontinuous at finitely many points. A4: f is discontinuous at at most countable points.	4.0	1.00

Objective Question

38	38	In the real line R, what can one say about non-empty open set? A1: an open interval. A2: the union of a countable disjoint class of open intervals. A3: the union of a finite class of open intervals. A4: none of these.	4.0	1.00

Objective Question

39	39	The sum of the degrees of the vertices of a graph is A1: the number of edges plus 2 A2: the number of vertices minus two A3: two times the number of vertices A4: two times the number of edges	4.0	1.00

Objective Question

40	40	The number of edges of a simple graph with n vertices and with ω components is	4.0	1.00

		A1 : $\geq \frac{(n-\omega)(n-\omega+1)}{2}$ A2 : $\leq \frac{(n-\omega)(n-\omega+1)}{2}$ A3 : $\frac{(n-\omega)(n-\omega+1)}{2}$ A4 : $\geq \frac{(n-\omega)(n-\omega-1)}{2}$		

Objective Question

41	41	Let $S=\left\{\frac{1}{n}:n\in N\right\}\cup\{0\}$ *and* $T=\left\{n+\frac{1}{n}:n\in N\right\}$ be the subsets of the metric space R with the usual metric. Then A1 : S is complete but not T A2 : T is complete but not S A3 : both S and T are complete A4 : neither T nor S is complete	4.0	1.00

Objective Question

42	42	$\int_c \frac{1}{2z+3}dz$ where C is $\lvert z+3/2\rvert=2$ is A1 : $2\pi i$ A2 : πi A3 : 0 A4 : 1	4.0	1.00

Objective Question

43	43	The radius of convergence of the power series $\sum_{n=0}^{\infty}\frac{(2n)!}{(n!)^2}(z-3i)^n$ is A1 : 1/4 A2 : 4 A3 1	4.0	1.00

		A3 : A4 : ½		

Objective Question

44	44	For the function $\frac{1}{(2\sin z-1)^2}$ A1 : z=0 is a simple pole A2 : z=0 is a removable singularity A3 : $\frac{\pi}{6}$ is a pole of order 2 A4 : $\frac{\pi}{3}$ is a pole of order 2	4.0	1.00

Objective Question

45	45	The range of a continuous real function defined on a connected space is A1 : the real line A2 : an Interval A3 : a closed and bounded set A4 : compact	4.0	1.00

Objective Question

46	46	Which of the following two spaces are homeomorphic: A1 : $[0,1]$ & $(0,1)$ A2 : $[0,1]$ & $\{0\}\cup\left\{\frac{1}{n}:n\in N\right\}$ A3 : $\{0\}\cup\left\{\frac{1}{n}:n\in N\right\}$ & $\{(x,y)\in R^2:x^2+y^2=1\}$ A4 : $(0,1)$ & $\{(x,y)\in R^2:x^2+y^2=1\}-\{(1,0)\}$	4.0	1.00

Objective Question

47	47	Which of the following points are collinear? A1 : (0,0,-1), (0,1,0), (1,2,3)	4.0	1.00

		A2: (1,0,0), (0,1,0), (0,0,l) A3: (5,3,-2), (3,2,1), (-1,0,7) A4: (1,2,0), (2,3,0), (2,2,2)		

Objective Question

48	48	The acute angle between the line joining the points (3,1,-2), (4,0,-4) and (4,-3,3), (6,-2,2) is A1: $\frac{\pi}{3}$ A2: $\frac{\pi}{6}$ A3: $\frac{\pi}{7}$ A4: $\frac{\pi}{4}$	4.0	1.00

Objective Question

49	49	The angle between the planes 2x-y+z=6 and x+y+2z=3 is A1: $\frac{\pi}{3}$ A2: $\frac{\pi}{6}$ A3: $\frac{\pi}{7}$ A4: $\frac{\pi}{4}$	4.0	1.00

Objective Question

50	50	(i). If A is contained in the union of a collection of sets, then A is contained in a set in the collection. (ii) If A contains an intersection of a collections of sets, then A contains a set in that collection A1: Both (i) and (ii) are true A2: (i) is true but (ii) is not true A3: (ii) is true but (i) is not true A4: Neither (i) nor (ii) is true	4.0	1.00

Objective Question

51	51	When A is infinte set and B is an empty set, there exists a bijective mapping from the cartisian product *A* x *B* to	4.0	1.00

		A1: A A2: B A3: a finite nonempty set A4: some infinite set		

Objective Question

52	52	If A = { 1,2,3 } and B = {2,4,6,8}, then the number of functions from A to B is A1: ${}^4C_3$ A2: ${}^4P_3$ A3: 3^4 A4: 4^3	4.0	1.00

Objective Question

53	53	Which is not a binary operator on Z A1: a * b = a A2: a * b = max(a,b) A3: a * b = average of a and b A4: a * b = a + 2b	4.0	1.00

Objective Question

54	54	Greatest common divisor of two integers a, b with a less than or equal to b , is 1 A1: only if both a and b are prime numbers A2: only if a and b have no common prime divisor A3: only if a = b A4: only if a does not divide b	4.0	1.00

Objective Question				
55	55	Let a prime factorization of an integer $n = p_1^{r_1} p_2^{r_2} \dots p_k^{r_k}$ is a square A1: if $r_1, r_2, \dots, r_k$ are squares A2: if $r_1, r_2, \dots, r_k$ are composite numbers A3: if $r_1, r_2, \dots, r_k$ are even integers A4: if the product of $r_1, r_2, \dots, r_k$ is a square	4.0	1.00
Objective Question				
56	56	The linear congruence ax = b(mod m) has a solution A1: if a is a prime number A2: if b is a prime number A3: if a and b are prime numbers A4: if no integer greater than 1 divide both a and m.	4.0	1.00
Objective Question				
57	57	Let S denote the set of all functions from Z to Z. The composition of the functions is A1: not an associative binary operator A2: not a commutative binary operator A3: not a binary operator A4: not well defined	4.0	1.00
Objective Question				
58	58	A permutation in a symmetric group S_n is (i) a product of disjoint cycles. (ii) a product of disjoint transpositions. A1: Both (i) and (ii) are true A2: (i) is true but (ii) is not true. A3 (ii) is true but (i) is not true.	4.0	1.00

		A4: Neither (i) nor (ii) is true.		
Objective Question				
59	59	Let G be a group with identity element e. For some a, b in G then (i) ab = b then a = e (ii) a.a = e then a = e A1: Both (i) and (ii) are true A2: (i) is true but (ii) is not true. A3: (ii) is true but (i) is not true. A4: Neither (i) nor (ii) is true.	4.0	1.00
Objective Question				
60	60	Which one is a group A1: the set of integers modulo 6 with multiplication as binary operator A2: the set of integers modulo 6 without zero element with multiplication as binary operator A3: the set of 1,2,4,5,7,8 modulo 9 with multiplication as binary operator A4: the set of 0,2,4 modulo 5 with addition as binary operator	4.0	1.00
Objective Question				
61	61	For every positive integer n A1: there exists a cyclic goup of order n A2: there exists a group of order n but there may not be any cyclic gorup of order n A3: there may not be any group of order n A4: there exists a group of order n if n is a prime.	4.0	1.00
Objective Question				
62	62	Let G be a cyclic group of order n where n > 2. A1: Then G has unique generator.	4.0	1.00

		A2: Then G has unique generator if n is a prime number . A3: Then G has exactly two generators. A4: Then G has atleast two generators.		
Objective Question				
63	63	(i) A subgroup of a cyclic group is cyclic (ii) A nontrivial subgroup of an infinite cyclic group is infinite A1: Both (i) and (ii) are true. A2: (i) is true but (ii) is not true. A3: (ii) is true but (i) is not true. A4: Neither (i) nor (ii) is true.	4.0	1.00
Objective Question				
64	64	Let G be a finite group and H be a subgroup of G. Which one of the statements is not true A1: Any two left cosets of H in G have same number of elements A2: A left coset of H and a right coset of H has same number of elements A3: Every left coset of H is equal to some right coset of H. A4: A left coset aH is equal to the left coset bH if a = bh for some h in H	4.0	1.00
Objective Question				
65	65	Let G be a group of order n. (i) For every divisor d of n there exists a subgroup of G with order d. (ii) For every subgroup H of G the order of H is a divisor of n. A1: Both (i) and (ii) are true. A2: (i) is true but (ii) is not true. A3: (ii) is true but (i) is not true. A4: Neither (i) nor (ii) is true.	4.0	1.00
Objective Question				
66	66		4.0	1.00

		Let G be a group. f and g are mappings from G to G defined as $f(a) = a^{-1}$ and $g(a) = a*a$ (i) f is a homomorphism (ii) g is a homomorphism A1: Both (i) and (ii) are true. A2: (i) is true but (ii) is not true. A3: (ii) is true but (i) is not true. A4: Neither (i) nor (ii) is true.		
Objective Question				
67	67	Let V be a finite dimensional vector space then a basis of V is a (i) maximal linearly independent set (ii) minimal generator set A1: Both (i) and (ii) are true. A2: (i) is true but (ii) is not true. A3: (ii) is true but (i) is not true. A4: Neither (i) nor (ii) is true.	4.0	1.00
Objective Question				
68	68	Which one is not a countable set? A1: The set of all positive rational numbers less than 1. A2: The set of positive irrational numbers less than 1. A3: The set of all positive rational numbers. A4: The set of all integers.	4.0	1.00
Objective Question				
69	69	The closed sets in real numbers is A1: a finite set A2: a countable set A3: a compact set	4.0	1.00

		A4: is a set which may contain uncountable elements		

Objective Question

70	70	(i) A countable infinite set of real numbers has a limit point (ii) A bounded infinite set of real numbers has a limit point A1: Both (i) and (ii) are true. A2: (i) is true but (ii) is not true. A3: (ii) is true but (i) is not true. A4: Neither (i) nor (ii) is true.	4.0	1.00

Objective Question

71	71	Let f be a continuous real valued function defined on real line Then which one is not a correct statement. A1: If U is open interval then $f^{-1}(U)$ is an open set. A2: If V is closed interval then $f^{-1}(V)$ is a closed set. A3: If U is open interval then f(U) is an open set. A4: f^{-1} need not be a continuous function.	4.0	1.00

Objective Question

72	72	If f is a real valued function defined on an open interval (a,b) and f is differentiable at x, a point in the interval, then which one of the following statements is correct? A1: f is continuous at every point of (a,b). A2: f is continuous at x but need not be continuous at every point of (a,b). A3: f need not be continuous at x. A4: f is bounded on (a,b).	4.0	1.00

Objective Question

73	73	Lef f: $S \rightarrow T$ be a function and for every subset of A of S, $f^{-1}(f(A)) = A$ if and only if A1: f is one to one.	4.0	1.00

		A2: f is onto. A3: f is bijective. A4: f is identity map.		

Objective Question

74	74	A set of real numbers S has supremum if and only if A1: S is bounded. A2: S is bounded above. A3: S is compact. A4: S is closed.	4.0	1.00

Objective Question

75	75	The constant sequence 1,1,1…. is ___________ A1: Convergent and the limit is 1 A2: divergent and the limit is ∞ A3: convergent and the limit is 2 A4: none of these	4.0	1.00

Objective Question

76	76	The sequence $\left\{\frac{1}{n}\right\}$ is A1: Convergent A2: divergent A3: unbounded A4: none of these	4.0	1.00

Objective Question

77	77	A convergent sequence has ____	4.0	1.00

		A1 : Two limits A2 : an unique limit A3 : Infinite Limits A4 : multiple limits		
Objective Question				
78	78	If (X,d) is a metric space, then the whole space X and the empty set φ are both A1 : Open A2 : Closed A3 : open and closed A4 : none of these.	4.0	1.00
Objective Question				
79	79	Which of the following function is uniformly continuous on (0,1) A1 : $e^{\frac{1}{x}}$ A2 : $\sin\left(\frac{1}{x}\right)$ A3 : $\frac{\sin(x^2)}{\sin^2(x)}$ A4 : $\frac{1}{x}$	4.0	1.00
Objective Question				
80	80	The function defined by $f(x)=\begin{cases}1 & \text{if x is rational}\\ 0 & \text{if x is irrational}\end{cases}$ is A1 : Riemann integrable A2 : Continuous function A3 : Nowhere continuous	4.0	1.00

		A4 : Unbounded		

Objective Question

81	81	The sequence of functions $f_n(x)=\frac{1}{1+(x-n)^2}$ on $(-\infty,0)$ is A1 : Pointwise Convergent A2 : Uniformly Convergent A3 : Divergent A4 : Convergent	4.0	1.00

Objective Question

82	82	The sum $1+\frac{1}{2}+\frac{1}{4}+...=$ A1 : 1 A2 : 2 A3 : ∞ A4 : 0	4.0	1.00

Objective Question

83	83	$Lt_{n\to\infty}\frac{n^2}{2n^2+1}=?$ A1 : 2 A2 : 1/2 A3 : 0 A4 : ∞	4.0	1.00

Objective Question

84	84	In a metric space (X,d), A1 : Every infinite set E has a limit point in E	4.0	1.00

		A2: Every closed subset of a compact set is compact A3: Every closed and bounded set is compact A4: Every subset of a compact set is closed		
Objective Question				
85	85	Let $f : X \to Y$ be any function between metric spaces, f is continuous if and only if for any open set $U \subseteq Y$, __________________ A1: $f(U) \subseteq Y$ A2: $f'(U) \subseteq Y$ A3: $f'(U) \subseteq X$ A4: none of these	4.0	1.00
Objective Question				
86	86	The analytic function which maps the angular region $0 \leq \theta \leq \pi / 4$ A1: Z^2 A2: 4z A3: Z^4 A4: $2\ \theta$	4.0	1.00
Objective Question				
87	87	The integral of $\oint (z - z_0)^m\, dz$ is equal to A1: 0 for m = -1 A2: $2\pi i$ for m = -1 A3: 2 for m = -1 A4: π for m = -1	4.0	1.00
Objective Question				

88	88	If an entire function $f(z)$ is bounded in absolute value for all z, then – A1: $f(z)$ = constant A2: $f(z)$ = zero A3: $f(z) = \infty$ A4: none of these	4.0	1.00

Objective Question

89	89	If $f(z)$ is analytic in domain D, then A1: $f^{(n)}(z)$ exist in D A2: $f^{(n)}(z)$ does not exist in D A3: $f^{(n)}(z) = 0$ for all in D A4: none of these	4.0	1.00

Objective Question

90	90	If $f(z)$ is continuous in a simple connected domain D and if $\oint f(z)dz = 0$ for every closed contour in D, then – A1: $f\infty(z)$ is non – analytic in D A2: $f(z)$ is analytic in D A3: $f(z)$ is constant A4: $f(z)$ is bounded	4.0	1.00

Objective Question

91	91	If f(z) is entire function the Taylor series is A1: Convergent for all z A2: Divergent for all z A3: Convergent and bounded for all z	4.0	1.00

		A4: Constant		

Objective Question

92	92	The residue of the function $f(z) = \frac{z^2}{(z-1)^2(z-2)}$ at z= - 2 A1: 9/4 A2: 3/2 A3: 4/9 A4: 2/3	4.0	1.00

Objective Question

93	93	If ω be an imaginary cube root of unity then $(1-\omega+\omega^2)^5+(1+\omega-\omega^2)^5$ is A1: 64 A2: 32 A3: 16 A4: 8	4.0	1.00

Objective Question

94	94	The value of arg(z)+arg($\bar{z}$), where z is not equal to zero is A1: 0 A2: π A3: $\frac{\pi}{2}$ A4: $\frac{\pi}{4}$	4.0	1.00

Objective Question

95	95	If G is a region and f is non constant analytic function on G. The open mapping theorem state for any open set U in G A1: f(U) is closed A2 f(U) is open	4.0	1.00

		A3: f(U) is closed, bounded A4: f(U) is closed, analytic		

Objective Question

96	96	If z=a is an isolated singularity of f and $f(z) = \sum_{n=-\infty}^{\infty} a_n(z-a)^n$ is its Laurent series expansion in annulus (a;0;R) then if $a_n = 0$ for n< -1, we say z=a is A1: A pole of order n A2: A simple pole A3: A removable singularity A4: An essential singularity	4.0	1.00

Objective Question

97	97	If $z_1 \neq z_2 \neq z_3 \neq z_4$ in C_∞ the cross ratio (z_1, z_2, z_3, z_4) is a real number if z_1, z_2, z_3, z_4 lies on A1: Triangle A2: Parabola A3: Circle A4: Hyperbola	4.0	1.00

Objective Question

98	98	The real part of exp(exp(iθ)) is A1: $e^{\cos\theta}$ A2: $e^{\cos\theta}\sin(\sin\theta)$ A3: $e^{\cos\theta}\cos(\sin\theta)$ A4: $e^{\cos\theta}\sin(\cos\theta)$	4.0	1.00

Objective Question				
99	99	A open set G is simply connected if G is connected and A1: Every curve in G is homotopic to zero A2: Every closed curve in G homotopic to zero A3: Every curve in G is non homotopic to zero A4: Every closed curve in G, G is non homotopic to zero	4.0	1.00
Objective Question				
100	100	If $f(z) = z^6 - 5z^4 + 10$, find the number of zeros in the annulus region $2 < \|z\| < 3$. A1: 3 A2: 6 A3: 2 A4: 0	4.0	1.00