KATHMANDU UNIVERSITY
End Semester Examination [C]
June/July 2024

Marks Scored:

Level : B.Sc.
Year : II

Course : MATH 213
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : 08 JUL 2024

SECTION "A"
[10Q. × 1 = 10 marks]

Fill in the blank space(s) by writing the most appropriate word(s) or symbol(s).

1. If a real number is not irrational then it is _____

2. A set A is said to be countable if there exists a _____ function f:A→N such that f is

3. If f is real valued and monotonic on [a, b] then f is_____

4. If two sub-sequences of a sequence converge to two different limits, then the sequence is _____

5. The suprimum of set of negative real number is _____.

6. If a sequence is unbounded or it does not converge then this sequence is called_____

7. If f is differentiable in [a, b] and it has local maxima at x = c then f '(c) _____0.

8. The value of $\lim_{\infty} \frac{lnx}{e^x}$ is _____

9. If I = [0, 8] and P = (0, 1, 3, 4, 5, 8), the norm of partition of P is equal to_____

10. If the function f : $\Re \to \Re$ be defined by f(x) = x^2 + 5, then f o f^{-1}(a) = _____

SECTION "B"
[10 Q. × 1 = 10 marks]

Fill in the blank space(s), **DO NOT TICK**, by selecting the most appropriate answers from among the given ones

11. Irrational number of following is _____
[5/6; π; 2n such that n ∈ ℕ; 0.5]

12. Every pair of real numbers a and b satisfied the following conditions a > b, a = b, a < b . This property known as _____
[Commutative Law; Associative Law; Transitive Law; Trichotomy Law]

13. A convergent sequence has only _____limit(s).
[one; two; three; No]

14. If a sequence has unique limit, then the sequence is _____
[may convergent; may divergent; convergent; divergent]

15. Every Cauchy sequence has a _____
[convergent subsequence. increasing subsequence
decreasing subsequence. positive subsequence]

16. Let $\sum a_n$ be a series of non-negative terms. Then it is convergent if _____
[Increasing; Decreasing; bounded; unbounded]

17. Which of the following statements is not correct? _____
a. Every increasing sequence of positive numbers diverges or has single limit point.
b. Every bounded and infinite sequence of real numbers has at least one limit point
c. Every monotonic real number sequence is convergent
d. Every convergent real number sequence is bounded

18. If f '(x) exists then f(x) is constant function if f '(x) _____
[> 0; < 0; $= 0$; ≥ 0]

19. If f is differentiable at x_0 in [a, b] then f is _____at x_0.
[infinite; bounded; continuous; Discontinuous]

20. If a function is Reimanns integrable on [a, b] then function must be_____
[Continuous on [a , b]; Undefined on [a, b];
Monotone on [a , b]; Differentiable on [a , b]]