



# TAMIL NADU OPEN UNIVERSITY

Chennai - 15  
School of Science

## ASSIGNMENT

Programme Code No	: 131
Programme Name	: B.Sc., Mathematics
Course Code & Name	: BMSS-51, Real Analysis
Batch	: AY 2021-22
No. of Assignment	: One Assignment for Each 2 Credits
Maximum Marks	: 30(Average of Total NO .Of Assignments)

### Assignment – I

Max. : 30 Marks

**Answer any ONE of the question not exceeding 1000 words**

1.(a) The set  $[0,1] = \{x; 0 \leq x \leq 1\}$  is uncountable .

(b) If  $f : A \rightarrow B$  and the range of  $f$  is uncountable ,prove that the domain of  $f$  is uncountable

2.The sequence  $\left\{ \left( 1 + \frac{1}{n} \right)^n \right\}_{n=1}^{\infty}$  is convergent

3.(a) If  $\{S_n\}_{n=1}^{\infty}$  is a sequence of real numbers which converges to  $L$  ,then  $\{S_n^2\}_{n=1}^{\infty}$  converges to  $L^2$

(b) Evaluate  $\lim_{n \rightarrow \infty} \sqrt{n}(\sqrt{n+1} - \sqrt{n})$



# TAMIL NADU OPEN UNIVERSITY

Chennai - 15  
School of Science

## ASSIGNMENT

Programme Code No	: 131
Programme Name	: B.Sc., Mathematics
Course Code & Name	: BMSS-51, Real Analysis
Batch	: AY 2021-22
No.of Assignment	: One Assignment for Each 2 Credits
Maximum Marks	: 30(Average of Total NO .Of Assignments)

### Assignment – II

Max. : 30 Marks

**Answer any ONE of the question not exceeding 1000 words.**

(1)(a) If  $\{S_n\}_{n=1}^{\infty}$  is a Cauchy sequence of real numbers then  $\{S_n\}_{n=1}^{\infty}$  is convergent.

(b) If  $\sum_{n=1}^{\infty} a_n$  is a convergent series then  $\lim_{n \rightarrow \infty} a_n = 0$

2.(a) If  $\sum_{n=1}^{\infty} a_n$  converges absolutely then the series  $\sum_{n=1}^{\infty} a_n$  converges

(b) State and prove D'Alembert Ratio Test

3. (a) State and prove the Minkowski Inequality

(b) If  $f$  is continuous at  $a$  and if  $g$  is continuous at  $f(a)$  then  $g \circ f$  is continuous at  $a$



# TAMIL NADU OPEN UNIVERSITY

Chennai - 15  
School of Science

## ASSIGNMENT

Programme Code No : 131  
Programme Name : B.Sc., Mathematics  
Course Code & Name : BMSSE-51, Mathematical Statistics  
Batch : AY 2021-22(3<sup>rd</sup> year)  
No.of Assignment : One Assignment for Each 2 Credits  
Maximum Marks : 30(Average of Total NO .Of Assignments)

### Assignment – I

Max. : 30 Marks

**Answer any ONE of the question not exceeding 1000 words**

1. Find Karl Pearson Coefficient of correlation for the following data

x	28	32	38	42	46	52	54	57	58
y	0	1	3	4	2	5	4	6	7

2. Find the regression lines for the following data

x	6	2	10	4	8
y	9	11	5	8	7

3. Find the Mean, Median, Mode of the following question

Class	Frequency
1-10	3
11-20	7
21-30	13
31-40	17
41-50	12
51-60	10
61-70	8
71-80	8
81-90	6
91-100	6



# TAMIL NADU OPEN UNIVERSITY

Chennai - 15  
School of Science

## ASSIGNMENT

Programme Code No : 131  
Programme Name : B.Sc., Mathematics  
Course Code & Name : BMSSE-51, Mathematical Statistics  
Batch : AY 2021-22(3<sup>rd</sup> year)  
No.of Assignment : One Assignment for Each 2 Credits  
Maximum Marks : 30(Average of Total NO .Of Assignments)

### Assignment – II

Max. : 30 Marks

**Answer any ONE of the question not exceeding 1000 words**

1. Write short notes of Hypothesis Testing Procedure
2. (a) . A machine is designed to produce insulating washers for electrical devices of average thickness of 0.025cm. A random sample of 10 washers as found to have an average thickness of 0.024 cm, with a standard deviation pf 0.002cm. Test the significance of the deviation .  
(b) state and prove The Addition theorem
3. The number of male and female births in 1000 families having five children

Male Children	0	1	2	3	4	5
Female Children	5	4	3	2	1	0
No of families	40	300	250	200	130	80

Test whether the given data is consistent with the hypothesis that the binomial law holds with even chance of getting a male or female child.