



# TAMIL NADU OPEN UNIVERSITY

Chennai - 15  
School of Science

## HOME / SPOT ASSIGNMENT

Programme Code No : 132  
Programme Name : B.Sc., Mathematics with Computer Applications  
Course Code & Name : BMS-21, Groups and Rings  
Batch : CY 2019  
No.of Assignment : One Assignment for Each 2 Credits  
Maximum CIA Marks : 25 (Average of Total No. of Assignment)

### Assignment – I

Answer any one of the question not exceeding 1000 words

1. Write a note on Symmetric group.
2. a) Define Centre of a group, illustrate and prove that the centre of a group  $G$  is a subgroup of  $G$ .  
b) Write a note on Normalizer in group.
3. Define product of two subgroups, illustrate and state a necessary and sufficient condition for product of two subgroups to be a subgroup.

### Assignment – II

Answer any one of the question not exceeding 1000 words

1. Find the number of generators of the group  $(\mathbb{Z}_{12}, \oplus)$ , proving all necessary results.
2. State and prove Lagrange's theorem, proving necessary results.
3. Define Index of a subgroup of a group, illustrate and prove that If  $H$  and  $K$  are two subgroups of  $G$  of finite index in  $G$  then  $H \cap K$  is a subgroup of finite index in  $G$ .

### **Assignment – III**

Answer any one of the question not exceeding 1000 words

1. State and prove Cayley's Theorem..
2. a) Define a field, give example and prove that any finite integral domain is a field.  
b) Prove that a finite commutative ring  $R$  without zero-divisors is a field.
3. State and prove the fundamental theorem of homomorphism on groups

### **Assignment – IV**

Answer any one of the question not exceeding 1000 words

1. State and prove the fundamental theorem of homomorphism on rings.
2. Show that any integral domain  $D$  can be embedded in a field  $F$  and every element of  $F$  can be expressed as a quotient of two element of  $D$ .
3. Prove that any Euclidean domain  $R$  is a unique factorization domain.



# TAMIL NADU OPEN UNIVERSITY

Chennai - 15  
School of Science

## HOME / SPOT ASSIGNMENT

Programme Code No : 132  
Programme Name : B.Sc., Mathematics with Computer Applications  
Course Code & Name : BMS-22, Statistics and Mechanics  
Batch : CY 2019  
No.of Assignment : One Assignment for Each 2 Credits  
Maximum CIA Marks : 25 (Average of Total No. of Assignment)

### Assignment – I

Answer any one of the question not exceeding 1000 words

1. Calculate the first four moments about mean and also find the skewness and kurtosis for the distribution below.

X	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	22-24
F	2	1	2	6	16	27	16	7	3	1	1

2. Fit a straight line to data below

Year	1984	1985	1986	1987	1988	1989
Production	7	9	12	15	18	23

3. Fit a parabola for the data given below.

x	1	2	3	4
f	9	24	47	78

### Assignment – II

Answer any one of the question not exceeding 1000 words

1. Find the coefficient of rank correlation for the following data which

shows the heights a sample of 12 fathers and their sons.

Height of Father	65	63	67	64	68	62	70	66	68	67	69	71
Height of son	68	66	68	65	69	66	68	65	71	67	68	70

2 Write properties of Moment Generating Function.

3. Fit a normal distribution to be the following data

x	0	1	2	3	4	5
f	10	14	19	8	5	4

### Assignment – III

Answer any one of the question not exceeding 1000 words

1. Show that the path of the projectile is a parabola. Also derive the greatest height attained by a projectile and time taken to reach the maximum height.
2. Discuss direct impact of two smooth spheres.
3. Write a note on simple harmonic motion.



# TAMIL NADU OPEN UNIVERSITY

Chennai - 15  
School of Science

## HOME / SPOT ASSIGNMENT

Programme Code No : 132  
Programme Name : B.Sc., Mathematics with Computer Applications  
Course Code & Name : BMC-23, Programming in C and C++  
Batch : CY 2019  
No.of Assignment : One Assignment for Each 2 Credits  
Maximum CIA Marks : 25 (Average of Total No. of Assignment)

### Assignment – I

Answer any one of the question not exceeding 1000 words

1. Explain Control statements available in C.
2. Write a note on Storage Class.
3. Write a note on a) Polymorphism b) Function overloading

### Assignment – II

Answer any one of the question not exceeding 1000 words

- 1 Explain User defined functions in C.
2. Write a note on Arrays in C.
3. Write a note on Structures and unions in C.

### Assignment – III

Answer any one of the question not exceeding 1000 words

1. Write a program to read a quadratic equation and print the roots using function.
2. Write a C program to create a structure with field members name of an item, item code, cost of each item and quantity in stock. Read the data and update the data using a function and calculate the total value using another function print the output.
3. Write C functions (i) to read a  $m \times n$  matrix (ii) to print a  $m \times n$  matrix (iii) to find the sum of two matrix. Use it in the main program to read two matrix and to print their sum if possible.