



TAMIL NADU OPEN UNIVERSITY
Chennai-15.
B.Sc Maths - Second Year
SPOT ASSIGNMENT

COURSE	COURSE CODE	ADMISSION YEAR
Groups and Rings	BMS – 21	AY 2017 - 18

Time: 1 Hour **Total Marks: 25**

Answer all questions.

- 1 Define centre of a group and prove that the centre of a group G is a subgroup of G . 9 Marks
- 2 State and prove a necessary and sufficient condition for an ideal of a commutative ring with identity to be a maximal ideal. 8 Marks
- 3 Prove that any Euclidean domain is a unique factorization domain. 8 Marks



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COURSE	COURSE CODE	ADMISSION YEAR
Statistics and Mechanics	BMS – 22	AY 2017 - 18

Time: 1 Hour

Total Marks: 25

Answer all questions.

- 1 Compute the coefficient of correlation between the variables X and Y 10 Marks
given bellow

X	1	3	5	6	7	8	10	12
Y	1	2	3	5	6	9	11	13

- 2 The following are the gains in weights of rats fed on two different diets 10 Marks
 D_1 and D_2 .

D_1 : 25, 32, 30, 34, 24, 14, 32, 24, 30, 31, 35, 25

D_2 : 44, 34, 22, 10, 47, 31, 40, 30, 32, 35, 18, 21, 35, 29, 22.

Test if the two diets differ significantly as regards their effect on increase in weights.

- 3 A particle is projected at an angle 30° with a velocity 490 m/sec. 5 Marks
Find (i) the greatest height attained (ii) the time of flight and (iii) the horizontal range.



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COURSE	COURSE CODE	ADMISSION YEAR
Classical Algebra and Numerical Methods	BMS – 23	AY 2017 - 18

Time: 1 Hour **Total Marks: 25**

Answer all questions.

- 1 If a, b, c are positive quantities, then show that 8 Marks

$$(a + b + c) \left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right) \geq 9.$$

- 2 Use Newton ó Raphson method to obtain a root correct to three decimal places of the equation $x^3 + 3x^2 - 3 = 0$. 8 Marks

- 3 Given the differential equation $\frac{dy}{dx} = \frac{x^2}{y^2 + 1}$ with $y(0) = 0$. 9 Marks

Obtain $y(0.25)$, $y(0.5)$ and $y(1.0)$ correct to four decimal places by Picard's method of successive approximations.