



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

COURSE	COURSE CODE	ADMISSION YEAR
Groups and Rings	BMS - 21	CY 2018

Time: 1 Hour

Total Marks: 25

Answer all questions.

- 1 Define a cyclic group and prove that a subgroup of a cyclic group is cyclic. 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 Define Ordered integral domain. State two of its properties and prove. 8 Marks



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COURSE	COURSE CODE	ADMISSION YEAR
Statistics and Mechanics	BMS – 22	CY 2018

Time: 1 Hour

Total Marks: 25

Answer all questions.

- 1 Show that the coefficient of rank correlation lies between -1 and 1. 10 Marks

- 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 If v_1 and v_2 be the velocities of a projectile at the ends of a focal chord 5 Marks
of its path and u is the velocity at the vertex. Prove that $v_1^{-2} + v_2^{-2} = u^{-2}$.



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COURSE	COURSE CODE	ADMISSION YEAR
Classical Algebra and Numerical Methods	BMS – 23	CY 2018

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

Answer all questions.

- 1 If a, b, c are positive quantities, then show that 6 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 10 Marks
places of the equation $x^3 + 3x^2 - 3 = 0$.

- 3 Given the differential equation $= \frac{x^2}{y^2 + 1}$ 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.