



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

COURSE	COURSE CODE	ADMISSION YEAR
Groups and Rings	BMC – 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
Classical Algebra and Numerical methods	BMC – 22	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 8 Marks
places of the equation $x^3 + 3x^2 ó 3 = 0$.

- 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.



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COURSE	COURSE CODE	ADMISSION YEAR
Programming in C and C++	BMC – 23	AY - 2017 - 18

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

Answer all questions.

- 1 Write a program to check whether a given number is prime or not using a function. 8 Marks
- 2 Write a program to find the roots of a quadratic equation using a function and use it in the main program to manipulate the roots. 9 Marks
- 3 Write a note on Constructors and Destructors. 8 Marks