

North Gauhati College  
Department of Mathematics

SEMESTER III(HONOURS)  
HOME ASSIGNMENT I 2021

**M-301 (NON-CBCS)**  
**Abstract Algebra**

August 2021

TOTAL MARKS: 20

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INSTRUCTIONS TO CANDIDATES

1. This assignment paper contains **Two (2)** questions and comprises **Two (2)** printed pages.
2. Answer all questions. The marks for each question are indicated at the beginning of each question.
3. Submit the assignment as a single **PDF** file through the online portal of our college website under section “Assignments” and send a copy to the email id [mathngc1969@gmail.com](mailto:mathngc1969@gmail.com).
4. Write your **Name**, **GU Roll No.**, and **Registration Number** in the assignment .
5. Submission **Due Date** is on or before **7th August, 2021**.

1. Define [2×5=10]

- (i) Group   (ii) Cyclic Group   (iii) Normal Sub-Group  
(iv) Ring   (v) Ideal

2. Answer *any two* of the following: [5×2=10]

- (i) Prove that set of natural number is a group with respect to addition.
- (ii) Show that cyclic group is abelian.
- (iii) If in a ring  $R$ ,  $x^2 = x \forall x \in R$  then show that  $R$  is commutative.

**END OF PAPER**