SRM Institute of Science and Technology
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Department of Mathematics
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Academic Year: 2023-2024(ODD)

Tutorial sheet - II

Date: 16 /10/2023

Course Code &Title: 18MAB302T/ Discrete Mathematics for Engineers
Year & Sem: III & 5th

Q. No	Questions	Answer Keys
1.	Prove that the set $Z_4 = (0, 1, 2, 3)$ is a commutative ring with respect to the binary operator $+_4$, $\times_4$.	
2.	Define integral domain.	
3.	Define a ring and field.	
4.	Find the multiplicative identity of the ring $R = \{\overline{0}, \overline{2}, \overline{4}\} \subseteq \mathbb{Z}_6$.	$\overline{4}$
5.	Find all zero divisors of the ring $(\mathbb{Z}_4, +_4, \cdot_4)$.	$\overline{2}$
6.	Show that the cancellation laws hold in a group.	
7.	Give an example of aring which is an integral domain but not a field.	
8.	Define group homomorphism and kernel.	
9.	Prove that identity element is the only idempotent element in a group.	
10.	If $\cdot$ is the binary operation on the set of integers defined by $a \cdot b = a + b + 2$ then find the identity element.	-2