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| **D:\logos\srmist  logo1.jpg** | | **SRM Institute of Science and Technology**  **Department of Mathematics**  **18MAB302T-Discrete Mathematics**  **Unit – II: Combinatorics, Number Theory**  **Tutorial Sheet - II** | |
| **S.No.** | **Questions** | | **Answers** |
| **Part - A** | | | |
| 1 | Find the remainder when is divided by 12. | | 9 |
| 2 | Prove that d|n and d|m implies d|(an+bm) | |  |
| 3 | Prove that the square of an integer is of the form 4m or 4m+1 | |  |
| 4 | Prove that the square of an odd integer is of the form 8m+1 | |  |
| 5 | If gcd, then show that gcd (, ) is either 1 or 3. | |  |
| **Part - B** | | | |
| 6 | Use the Euclidean algorithm to find (i) gcd(2464, 7469) and  (ii) gcd(6060, 9888) | | (i) 77 (ii) 12 |
| 7 | Find the integers and such that (i) and  (ii) | | No integral values of and |
| 8 | Find the integers and such that (i) and  (ii) | | (i) (ii) |
| 9 | Find the gcd and lcm of the following pairs of integers and also verify their correctness: (i) (432, 95256) (ii) (6773760, 12902400) | | (i)216; 190512  (ii)322560; 270950400 |
| 10 | Let a, b ∈ Z and suppose gcd(a, b) = 1. Prove the following.  (a) gcd(a + b, a − b) = 1 or 2.  (b) gcd(a + 2b, 2a + b) = 1 or 3.  (c) gcd( ) = 1 for all n ∈ N. | |  |