Digital Assignment Question

15.07.2022

Selection of Assignment Questions

To get your assignment questions among 5 sets given below, take the numerical part of your register number (For eg. 1902). Calculate register number modulo 5 (1902 modulo 5=2). Take the set based on the remainder you got. (Eg. Set2 for 1902).

Rubrics for Evaluation of Each Question

- Marks for Step-wise calculation: 4 Marks
- Correct Answer: 1 Mark

Split for 10 Marks

- Problem solving: 7 Marks (15 marks will be converted into 7 Marks)
- Presentation: 1 Mark [Good: 1; Else: 0]
- Punctuality: 2 Marks [On or before Due Date: 2; 1 day late: 1, 2 days late:0]

Due Date: 4 Aug 2022

Set1

1. Find GCD (215, 3189) using Euclidean Algorithm. Find x, y, MMI for the same using Extended Euclidean Algorithm (8 Marks)
2. Find the result : -2136 mod 273 and Φ(169) (2 Marks)
3. Roshan has a basket full of apples. When he takes the apples out of the basket 2 at a time, there is 1 apple left over. When he takes them out 3 at a time, there are 2 apples left over. Likewise, when he takes the apples out 4, 5, and 6 at a time, he finds remainders of 3, 4, and 5, respectively. However, when he takes the apples out 7 at a time, there are no apples left over. What is the least amount of apples that could be in his basket? (5 Marks)

Set2

1. Find GCD (1234,67890) using Euclidean Algorithm. Find x, y, MMI for the same using Extended Euclidean Algorithm. (8 Marks)
2. Find the result : -9876 mod 315 and Φ(260) (2 Marks)
3. How many primitive roots are there modulo 29 and Find all the primitive roots modulo 29. (5 Marks)

Set3

1. Find GCD (54321,987) using Euclidean Algorithm. Find x, y, MMI for the same using Extended Euclidean Algorithm. (8 Marks)
2. Find the result : -4312 mod 219 and Φ(345) (2 Marks)
3. Consider the system of simultaneous congruence's equations and find the value of x. (5 Marks)

$x \equiv 3 \pmod 5$

$x \equiv 5 \pmod 7$

$x \equiv 7 \pmod{11}$

Set4

1. Find GCD (3013,307829) using Euclidean Algorithm. Find x, y, MMI for the same using Extended Euclidean Algorithm (8 Marks)
2. Find the result : -5432 mod 76 and Φ(789) (2 Marks)
3. A General in a war field counted his troops remaining after a battle by lining them up in rows of different lengths, counting the number left over each time, and calculating the total from these remainders. If a general had 1200 troops at the start of a battle and if there were 3 left over when they lined up 5 at a time, 3 left over when they lined up 6 at a time, 1 left over when they lined up 7 at a time, and none left over when they lined up 11 at a time, how many troops remained after the battle? (5 Marks)

Set5

1. Find GCD (7469, 2464) using Euclidean Algorithm. Find x, y, MMI for the same using Extended Euclidean Algorithm (8 Marks)

2. Find the result : -5432 mod 38 and $\Phi(606)$ (2 Marks)

3. Find 18^{1001} mod 11 (5 Marks)

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