

EXAM 6 (duration: 25 minutes)

DatZ1143: Discrete mathematics for computing
Instructor: Abuzer Yakaryılmaz

Name and surname:

Student number:

Date:

Questions

(There are 7 questions, 10 points in total.)

1. What are the quotient and remainder when 80 is divided by 11?
(i.e., $80 = q \cdot 11 + r$, where $0 \leq r < 11$. Find q and r .) [1 point]

2. What are the quotient and remainder when -80 is divided by 11?
(i.e., $-80 = q \cdot 11 + r$, where $0 \leq r < 11$. Find q and r .) [1 point]

3. Which pairs in $\{-77, -53, -24, 24, 53, 77\}$ are congruent to each other modulo 7?
[3 points]

4. Prove that 201 is not a prime number. [1 point]

5. Prove or disprove that if a divides b , then b also divides a . [1 points]

6. Find the prime factorization of 630. [2 points]

7. Find positive even integers c and p such that c is composite and p is prime. Clearly indicate which number is c and which number is p . [1 point]