1. In \( \mathbb{Z}_{35} \)
   (a) How many numbers have multiplicative inverses? (2 points)
   (b) List the numbers in \( \mathbb{Z}_{35} \) that do **not** have multiplicative inverses (4 points)

2. Compute the following (4 points)
   (a) \( 16^{234} \mod 5 \)
   (b) \( 4^{23} \mod 6 \)

3. Discuss the pros and cons of El Gamal and RSA when used for
   (a) Encryption (5 points)
   (b) Digital Signatures (5 points)