Midterm Test (sample) – paper part. 10 points, ≤ 30 minutes. Nothing but pen is allowed.
This sample shows the difficulty and format of the actual test, but it will not be exactly the same.

1. a) List all positive divisors of 24. *(1 p)*

b) What is the order of 2 modulo 5? *(2 p)*

c) Calculate $\varphi(72)$. *(2 p)*

2. a) Perform the **extended** Euclidean algorithm on 420 and 110. *(5 p)*
b) Solve $420x \equiv 100 \pmod{110}$ (i.e. find *all* solutions).