

15) 3, 1

(1)

$$(2) y = g^x \bmod p \equiv 2^2 \bmod 23 \equiv 4$$

$$(3) u = g^r \bmod p \equiv 2^3 \bmod 23 \equiv 8$$

$$c = y^r m \bmod p \equiv 4^3 \cdot 4 \bmod 23 \equiv 3$$

$$u^x \equiv 8^2 \bmod p \equiv 18$$

$$(u^x)^{-1} \equiv 9$$

$$m \equiv c / u^x \bmod p \equiv 3 \cdot 9 \bmod 23 \equiv 4$$

(4)