

12. Alice creates an RSA public key pair. She chooses 17 and 11 as the two prime numbers to generate the public key and 7 as the other publicly-known value e .

i. How is the public key generated? [4]

ii. Explain the principle used to generate the publicly-known value e [2]

iii. What is the formula to generate the private key? [6]

iv. Alice wants to send the letter “M” (the numeric representation of M is 88) to Bob. What is the formula that Alice should use to generate the cipher message? [4]

v. What is the formula that Bob should use to decrypt the cipher message? [4]