To use RSA for this exercise, the encryption and decryption keys need to be set up first, provided the prime numbers p = 3 and q = 11, and the public key e = 3.

* Calculate n:  n = p × q = 3 × 11 = 33
* Calculate φ(n):  φ(n) = (p-1) × (q-1) = 2 × 10 = 20
* Choose public key e:  You've already provided e = 3.
* Calculate private key d:  d is the modular multiplicative inverse of e modulo φ(n).

   So, d × e ≡ 1 mod φ(n).

   Find d such that 3 × d ≡ 1 mod 20.

   By using the Extended Euclidean algorithm, I found d = 7.

For encrypt the phrase "A CAB", represented as "01 32 03 01 02": I used c ≡ m^e mod n, where m is the message and c is the ciphertext.

01 encrypted: 01^3 mod 33 = 1

32 encrypted: 32^3 mod 33 = 32

03 encrypted: 03^3 mod 33 = 27

01 encrypted: 01^3 mod 33 = 1

02 encrypted: 02^3 mod 33 = 8

Thus, "A CAB" encrypted is "01 32 27 01 08".

For my phrase, let's use "RSA FUN", which is represented as "18 19 01 32 06 21 14":

18 encrypted: 18^3 mod 33 = 24

19 encrypted: 19^3 mod 33 = 28

01 encrypted: 01^3 mod 33 = 1

32 encrypted: 32^3 mod 33 = 32

06 encrypted: 06^3 mod 33 = 18

21 encrypted: 21^3 mod 33 = 15

14 encrypted: 14^3 mod 33 = 20

So, my encrypted phrase is "24 28 01 32 18 15 20".