Course Title: Information Security principles
Date: 15 / 09 / 2014
No. of Questions: 3 Questions
Time: 2 hours
Using Calculator (No)

University of Palestine

Final Exam
Summer 2013/2014
Total Grade: 100

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Student No.: _____
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Dep. / Specialist: _____
Using Dictionary (No)

First Question — No. of Branches (1) — 10 Marks

(A)

Put (√) or (X) for each of the following statements:

1) Often secure system failure due to a break in the key distribution scheme ( )
2) When using public key encryption the security depends on securing the public key ( )
3) Network Security measures to protect data during their transmission over a collection of interconnected networks ( )
4) Active attacks are difficult to detect because they do not involve any alteration of the data. ( )
5) Fabrication is an attack on confidentiality ( )
6) Monoalphabetic substitution ciphers do not change relative letter frequencies ( )
7) Vigenère Cipher is a Monoalphabetic substitution cipher ( )
8) Substitution cipher hide the message by rearranging the letter order without altering the actual letters used ( )
9) A substitution followed by a transposition makes a new much harder cipher ( )
10) In AES, shift rows always followed by mix columns ( )

Second Question — No. of Branches (1) — 10 Marks

(A)

Define 5 of the following briefly:

1. session key

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2. Security Attack

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3. DES

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4. DSS

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5. KDC

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6. RSA

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7. Invisible watermarking

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8. Steganography

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9. MAC

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10. Fabrication

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Third Question **No. of Branches (8)** **80 Marks**

(A)

Answer Only 8 of the following questions:

1. Compare between the following pairs:

a. Block Cipher and Stream cipher

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b. AES and DES

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c. Link encryption and end-to-end encryption

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2. What is the purpose of using S-Boxes in DES?

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3. Using a Playfair matrix with the key "COMMENT", encrypt this message "Session Key" ?

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4. Explain what are the steps done in the tenth round in AES? Why they follow this arrange?

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5. How confidentiality and authentication can be applied in Public Encryption (RSA)?

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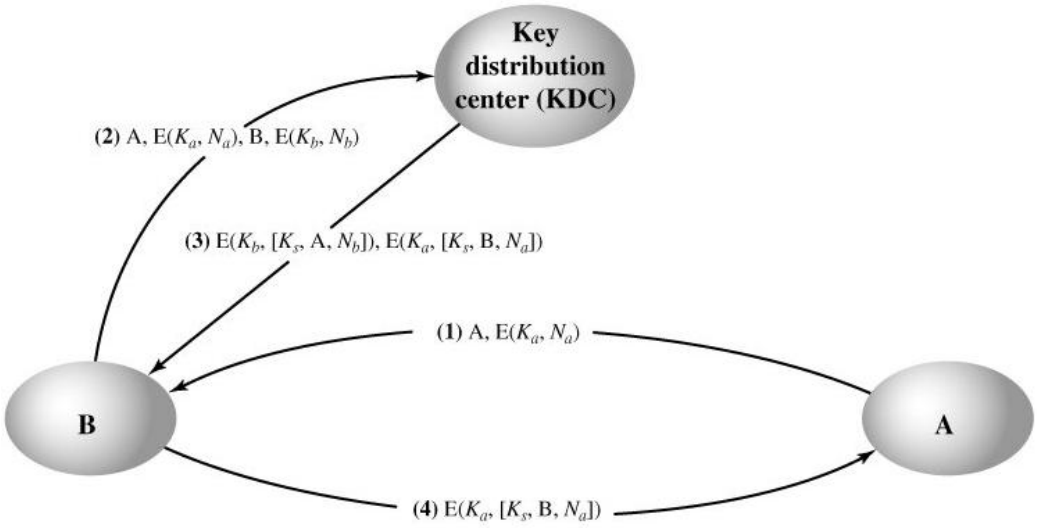
6. Explain in details how the following Key Distribution Scenario work?



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7. What are the features of watermarking?

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8. Explain how can you use Least Significant Bit method in steganography by the following example: **Data to be inserted: character '*F' and*** Host pixels: 3 pixel

   00100111 11101001 11001000
   00100111 11001000 11101001
   11001000 00100111 11101001

   How the average of the pixels actually changes from 0-1 or 1-0?

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9. Draw a chart the following:

1. **Watermarking system**

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2. MAC Algorithm using public encryption.

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3. Steganography System

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Good Luck