Final Exam
Multimedia Security

Exercice 1 (14 pts): Multiple Choice Questions.
Note: in some questions you may need to select more than one of the options. (Scored as 2 points for each question, no guarantee of partial credit for partially correct answers). Write your answers in your answer sheet.

Question 1: How to send a message without the adversary being able to even realize that there has been a transmission? The answer to this question is related to:
- (a) the Cryptography
- (b) the Watermarking
- (c) the Steganography
- (d) the steganalysis

Question 2: Watermarking is
- (a) How to ensure the persistence of the message in the transmission channel used.
- (b) How to be sure that the message has not been modified.
- (c) How to be sure that a malicious person did not have access to the message during its transfer.
- (d) How to send a message without the adversary being able to even realize that there has been a transmission?

Question 3: The purposes of using watermark include:
- (a) verifying the integrity of data.
- (b) analyzing and tracking data transfer algorithms.
- (c) establishing ownership of data.
- (d) conducting data compression and decryption.
- (e) None of the above.

Question 4: What is DRM?
- (a) Directory of Rights' Management
- (b) Data Rights Multimedia
- (c) Digital Radio Multimedia
- (d) Digital Rights Management

Question 5: What are the three metrics of Watermarking?
- (a) Robustness, Visibility and embedded Information
- (b) Robustness, Invisibility and embedded information
- (c) Consistency, Robustness and Visibility
- (d) Dependency, Consistency and Amount of embedded information

Question 6: What characterizes a fragile watermark?
- (a) High robustness and low invisibility
- (b) Low robustness and high embedded information
- (c) High invisibility and low embedded information
- (d) Low invisibility and high robustness

Question 7: Embedding one bit at one DCT coefficient is the:
   (a) LSB method
   (b) Block-based LSB method
   (c) Speed Spectrum method
   (d) Distortion method

Exercice 2 (6 pts): Draw up the following table on your answer sheet and put a cross (X) in the right category of attack.

Attack	Attack category		
	Unauthorized Embedding	Unauthorized Removal	System-level Attacks
Scrambling Attack			
Forgery attack			
Mozaic attack			
Noise Removal Attack			
Elimination attack			
Removing watermark			

Solution of Final Exam
Multimedia Security

Exercice 1 (14 pts): Multiple Choice Questions.

Question 1: (c)
Question 2: (a)
Question 3: (b)**,** (c)
Question 4: (d)
Question 5: (b)
Question 6: (c)
Question 7: (b)

Exercice 2 (6 pts): Draw up the following table on your answer sheet and put a cross (X) in the right attack category.

Attack	Attack category		
	Unauthorized Embedding	**Unauthorized Removal**	**System-level**
Scrambling Attack			x
Forgery attack	x		
Mozaic attack			x
Noise Removal Attack			x
Elimination attack		x	
Removing watermark		x	