

Question Paper

Exam Date & Time: 01-Jul-2022 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal School of Information Sciences (MSIS), Manipal
Second Semester Master of Engineering - ME (Cloud Computing) Degree Examination - June 2022

Cloud Security [CDC 5202]

Marks: 100

Duration: 180 mins.

Friday, July 1, 2022

Answer all the questions.

- 1) Identify the attack and violation of Confidentiality (C), Integrity (I), and Availability (A) and provide a solution to avoid the attack for the following scenarios. (10)

John received an email from PayPal stating that his account has been compromised and will be deactivated unless they confirm their credit card details. Immediately update the details of his credit card information, later his account was compromised. Name the attack and which part of the CIA is compromised and provide the solution to avoid this problem.
Priya found a pen drive while walking in the corridor. She plugs the pen drive in her Laptop. Later she found that the contents cannot of her laptop cannot be accessed. She gets a message asking her to transfer 1000 bitcoins to an unknown account to unlock her laptop. Name the attack and which part of the CIA is compromised and provide the solution to avoid this problem.
[5+5=10 Marks] [TLO 1.1]
- 2) Encrypt and decrypt the following message and cipher text.a. Encrypt the plaintext "SURRENDER" using Affine cipher using $(5x+8) \bmod 26$. (10)
b. Find the plain text for the cipher text "GPSDO AILTl VRVAA WETEC NITHM EDLHE TALEA ONME". It is known that the key is $k = 7$, using transposition cipher.
[4+6 Marks] [TLO 1.2]
- 3) Compare Symmetric and Asymmetric Cryptographic techniques.[10 Marks] [TLO 1.3] (10)
- 4) Explain Network Access Security Model concerning the gatekeeper function. [10 Marks] [TLO 1.4] (10)
- 5) Define the term (10)

Masking
Obfuscation
Hashing
Encryption[2.5x4 Marks] [TLO 2.1]
- 6) What are the possible Threat, Vulnerabilities and attacks in the IaaS Layer in the cloud? Provide solutions or highlight the list of mechanisms used to protect the IaaS Layer. [10 Marks] [TLO 2.2] (10)
- 7) Define the term (10)

Ingress filter
Egress filter
Security Policy
Defense in Depth[2.5x4 Marks] [TLO2.3]
- 8) Alice, Bob and Carol can read the file /etc/passwd. Alice and Carol can write to the file /u/markm/foo. Bob and Carol can read the file /etc/motd. Draw access control matrix, capability list, ACL for the above scenario.[10 Marks] [TLO 3.1] (10)

- 9) Define the term (10)
- DDoS
Malware
Logic Bomb
Virus[2.5x4 Marks] [TLO 3.2]
- 10) What is Intrusion Detection System? List the importance of it. Differentiate Signature-based and Anomaly-based Intrusion Detection systems. (10)
- [10 Marks] [TLO 2.3]

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