

- Q.3 (a) What is Cloud Security? Cloud Introduces Several Security Issues Including Multi-Tenancy, Lack of Control, And Lack of Trust. Please explain the above three security issues and discuss possible solutions. 10

OR

What are the challenges of Cloud Forensics? Discuss cloud forensics architecture.

- (b) What is Hardening? How to achieve Hardening of Virtualization? 10
- Q.4 (a) P and Q are TWO prime numbers. $P=7$, and $Q=17$. Take public key $e=5$. If plain Text is $m=6$, then what will be ciphertext value according to RSA algorithm? For decryption attacker is having possible set of secret keys $d=\{57,77,38,19\}$, choose correct secret key value using mathematical property of RSA. Then, calculate plain text value from ciphertext. 06

- (b) Compare the RSA algorithm with the Diffie Hellman algorithm? 06

OR

List out the Difference between Following:

a) Block cipher vs. Stream cipher

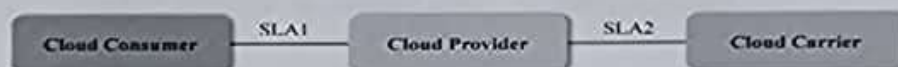
b) Symmetric Cipher and Asymmetric Cipher *MAC, DMC*

- (c) List out and explain different access control mechanism. What is the limitation of RBAC? How ABAC overcome the limitation of RBAC? 08

Rel Base

Attributions

- Q.5 (a) In the following scenario, a cloud provider participates in and arranges for TWO unique Service Level Agreements (SLAs), one with a cloud carrier (SLA2) and one with a cloud consumer (SLA1). What can be the requirements of SLA1 and SLA2 respectively? Discuss key components of SLA1 and SLA2 individually. 06



— SLA between cloud consumer and cloud provider

— SLA between cloud provider and cloud carrier

- (b) What is Cloud Accountability? Discuss possible solutions to achieve accountability in the cloud 06

OR

Discuss challenges of Cloud Forensics. Who are the forensic stakeholders in Cloud Eco-system?

- (c) Discuss Full Virtualization in detail. 08

OR

Encrypt the plaintext 'HIDE THE DEAD BODY AT 7' using PLAY FAIR CIPHER and Key: BRITISH11

END OF PAPER

Seat No.: _____

Enrolment No. _____

NATIONAL FORENSIC SCIENCES UNIVERSITY

M.Tech. (Cyber Security) - Semester -II- July 2023

Subject Code: CTMTCS SII P5 EL6

Date: 14/07/2023

Subject Name: Cloud Security and Forensics

Time: 11 AM TO 2 PM

Total Marks: 100

Instructions:

1. Write down each question on separate page.
2. Attempt all questions.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks.

- | | | Marks | |
|-----|---|-------|------|
| Q.1 | (a) ✓ List out and Briefly Explain Stakeholders of Cloud Architecture given by NIST | 06 | |
| | OR | | |
| | Elaborate on the different stages of Evolution of Cloud Computing. | | |
| | (b) ✓ In what way do containers and Virtual Machine (VM) differ? | 06 | (25) |
| | OR | | |
| | Discuss different components of Docker Environment. | | |
| | (c) ✓ Compare the working of IaaS and PaaS based on following parameters : Services, Provider, Users, Limitation, Security, billing | 08 | |
| Q.2 | (a) What are the features of Virtual Machine Monitor? Discuss different types of Virtualizations. <i>Full, Para, Hybrid, Appl, Network, Hardware, Software,</i> | 06 | |
| | OR | | |
| | In February of 2021, Raychat, an online chat application, survived a large-scale cyber attack. A cloud database configuration breach gave hackers free access to 267 million usernames, emails, passwords, metadata and encrypted chats. Shortly thereafter, a targeted bot attack erased the entirety of the company's data saved in MongoDB. Using the principle of security, propose your security measures so that such incidents could be avoided. | | (15) |
| | (b) Discuss the Difference between following:
i. Public Cloud vs Private Cloud vs Community Cloud
ii. Full Virtualization vs Para Virtualization | 06 | (3) |
| | (c) If you were to switch to cloud computing what considerations might cross your mind? What are the possible strategies in cloud migration? | 08 | (3) |
| | OR | | |
| | Discuss different memory management techniques to optimize virtual memory of Hypervisor. <i>ballooning, Mmap, Page,</i> | | |