

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh semester B.Tech examinations (S), September 2020

Course Code: CS409**Course Name: CRYPTOGRAPHY AND NETWORKSECURITY**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all questions, each carries 4 marks.*

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| 1 | Which parameters and design choices determine the actual algorithm of a Fiestel Cipher. | (4) |
| 2 | Encrypt the message “ the house is being sold tonight ” using Vigenere cipher with key “ <i>dollars</i> ”. Ignore the space between words. Decrypt the message to get the plain text. | (4) |
| 3 | Compare stream cipher and block cipher with example. | (4) |
| 4 | Find $\text{gcd}(252,105)$. | (4) |
| 5 | List different types of attacks addressed by message authentication. | (4) |
| 6 | Illustrate Needham and Schroedor protocol for mutual authentication. | (4) |
| 7 | Compare transport mode and tunnel mode functionalities in IPSec. | (4) |
| 8 | List out the five header fields and their meaning defined in MIME. | (4) |
| 9 | What are the steps involved in the SSL record protocol transmission? | (4) |
| 10 | Compare SSL and TLS. | (4) |

PART B*Answer any two full questions, each carries 9 marks.*

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| 11 | a) Discuss about different polyalphabetic cipher substitution techniques. | (4) |
| | b) Explain single round of DES algorithm. | (5) |
| 12 | a) Differentiate between Confusion and Diffusion. | (4) |
| | b) Explain the key generation in IDEA. | (5) |
| 13 | Explain AES algorithm in detail. | (9) |

PART C*Answer any two full questions, each carries 9 marks.*

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| 14 | a) Alice and Bob agreed to use RSA algorithm for the secret communication. Alice securely choose two primes, $p=5$ and $q=11$ and a secret key $d=7$. Find the corresponding public key. Bob uses this public key and sends a cipher text 18 to Alice. Find the plain text. | (6) |
| | b) State and prove Euler’s theorem. | (3) |

- 15 a) Explain three different Arbitrated Digital Signature Techniques. (9)
- 16 a) What is suppress replay attack in authentication? Explain the protocol used to eliminate this attack. (4)
- b) Explain the key exchange procedure using Elliptic Curves. (5)

PART D

Answer any two full questions, each carries 12 marks.

- 17 a) Explain the sequence of steps involved in the message generation and reception in PGP with block diagrams. (8)
- b) List out the benefits of IPsec. (4)
- 18 a) Explain the features of any two types of firewalls. (6)
- b) Explain the sequence of operations required for Secure Electronic Transaction. (6)
- 19 a) Explain the format of IPsec ESP Packet. (6)
- b) Illustrate the overall operation of SSL Record Protocol. (6)
