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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, Dec 2020

Course: IT Application & Data Security
Program: B. Tech. (Hons.) CSE (Cyber Security and Forensics)
B. Tech (Hons.) CSE (Blockchain)
Course Code: CSSF2005

Semester: III

Time 03 hrs.
Max. Marks: 100

SECTION A

- 1. Each Question will carry 5 Marks**
2. Instruction: Complete the statement / Select True or False/ Write direct phrases asked

S. N.	Question	CO
Q1	Name any five types of computer viruses.	CO1
Q2	Indicate True or false for each of the following statements: a) Faraday cage is used to provide shielding to electronic devices against electromagnetic interference b) Network Attached Storage (NAS) cannot be used as a data backup facility c) Firewall is a software that is used to encrypt back up data d) Different keys are used for encryption and decryption in public key cryptography e) Trusted Platform Module (TPM) is a software used for file system level encryption.	CO2
Q3	a) Name any three types of denial-of-service attacks. b) Session hijacking, _____ and _____ attacks are possible due to poor session security countermeasures.	CO3
Q4	Fill in the following blanks: a) _____, _____ and _____ are three parameter manipulation threats for web applications. b) Strong input validation can avoid _____ and _____ types of attacks on web applications.	CO4
Q5	a) Fill in the following blanks: The security logs are generated along the lines of sources such as _____, _____ and _____. b) Indicate True or False for each of the following statements: i) Log records should not store timestamp of the events. ii) Sensitive information such as passwords should not be recorded in log files.	CO5
Q6	Name any five hardware based mechanisms/tools to enhance data security.	CO1

SECTION B

1. Each question will carry 10 marks

2. Instruction: Write short / brief notes

Q7	List and briefly explain the following: a) Any two examples of data that can be termed as sensitive in an organization and which needs data security. b) Any three elements that should be considered while designing a complete data security framework for an organization.	CO1
Q8	Explain the process of Data Erasure. Mention any two problems associated with Data Erasures.	CO2
Q9	Provide any two differences between Brute force attack and Dictionary attack. List any two countermeasures against Brute force attacks.	CO3
Q10	List any five considerations while implementing a complete cryptographic security framework for an organization. Also, list any three possible loopholes that may compromise cryptographic security of the organization.	CO4
Q11	Describe the need of logging for a web application. Write down any three requirements of an effective security log management system.	CO5

SECTION C

1. Each Question carries 20 Marks.

2. Instruction: Write long answer.

Q12	<p>A website has following components:</p> <ul style="list-style-type: none">i) Username/ password based authentication for users.ii) Store sensitive text data entered by the user.iii) An input field based query system to search connected database and display required stored sensitive data.iv) A blog where users can comment and view comments entered by other users. <p>Explain the following in detail:</p> <ul style="list-style-type: none">a) Vulnerability offered by each of the above components.b) Countermeasures for each of the above vulnerabilities. <p style="text-align: center;">OR</p> <p>Elaborate the following for a) SQL Injection attack and b) Cross Site Scripting attack</p> <ul style="list-style-type: none">i) Process of performing these attacksii) Conditions when applications become vulnerable to these attacksiii) Countermeasures for these attacksiv) Problems with the above countermeasures	CO3
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