

Modified

CBCS SCHEME

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17EC835

Eighth Semester B.E. Degree Examination, July/August 2021 Network and Cyber Security

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Discuss the secure socket layer Architecture. (08 Marks)
b. Explain the connection state parameters. (08 Marks)
c. Mention the elements of the communication are encrypted when HTTPS is used. (04 Marks)
- 2 a. Explain the SSH transport Layer Packet Exchange with
i) Connection Via TCP
ii) Connection Via SSH tunnel. (10 Marks)
b. Discuss the steps involved for message exchange and Authentication methods. (10 Marks)
- 3 a. Mention the reasons for widely used PGP. (08 Marks)
b. What are the limitations of SMTP? (08 Marks)
c. What are the Five headers fields defined in MIME? (04 Marks)
- 4 a. Draw the block diagram of internet mail architecture and mention the function of each key component. (10 Marks)
b. Write the Function Flow diagram of DKIM and explain it. (10 Marks)
- 5 a. Discuss the Applications of IP Security. (08 Marks)
b. Explain the IP security processing model for outbound packets. (08 Marks)
c. Mention the services provided by RFC 4301. (04 Marks)
- 6 a. Draw the block diagram of IP Security Architecture and explain it. (10 Marks)
b. Explain Internet Key Exchange Header format and Generic Payload header. (10 Marks)
- 7 a. Compare Virus and Worms. (04 Marks)
b. Explain Antipattern based signature based Malware Detection versus polymorphic Threats. (08 Marks)
c. Discuss the primal design forces in the cyber security domains. (08 Marks)
- 8 a. Explain the heading fields and body fields in the full cyber antipattern template. (10 Marks)
b. Explain the following cyber security Antipattern catalogs.
i) Unpatched Applications
ii) Webify Everything (10 Marks)
- 9 a. Explain Architectural problem solving pattern. (10 Marks)
b. Discuss Minipattern for problem solving meetings. (10 Marks)
- 10 a. Discuss the list of typical re-imaging sequence for the window operating systems. (10 Marks)
b. Explain the typical installation sequence for a sliding – rails rack server. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Date: 05-08-2021

The Scheme and Solutions of following subjects are verified and found that they are very much in line with the question paper.

Sl no.	Sub code	Subject Name	Remarks
1.	17EC831	Micro Electro Mechanical Systems	No Modifications.
2.	17EC833	Radar Engineering	No Modifications.
3.	17EC834	Machine Learning	No Modifications.
4.	17EC835	Network and cyber Security	No Modifications.

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Scheme & Solutions

Signature of Scrutinizer

Subject Title : Networks and Cyber Security

Subject Code : 17EC835

Question Number	Solution	Marks Allocated
1 a)		<p align="center">P-1/5</p> <p align="right">3M 5M</p>
b)	<ul style="list-style-type: none"> - Server & Client random - Server Write MAC Secret - Client Write MAC Secret - Server Write Key - Client Write Key - Initialization Vector - Sequence numbers 	<p align="right">8M</p> <p align="center">With Explanation</p>
c)	<ul style="list-style-type: none"> - URL of the requested document - Contents of the document - Contents of browser form - Cookies sent from browser to Server and from Server to browser - Content of HTTP header 	<p align="right">4M</p>
2 a)		<p align="right">2M 3M</p> <p align="right">2M 3M</p>

Question Number	Solution	Marks Allocated
2 b)	Write all six steps of Message exchange Authentication Methods:	4M
3 a)	- public key } - with exp - password } - Host based. } ① It is available free worldwide ② based on algorithms ③ wide range of applications applicability ④ It was not developed by nor is it controlled by any Govt. or standards organizations ⑤ It is an internet standards track	6M 8M
b)	Limitations: - cannot transmit executable files - cannot transmit text data - SMTP Server may reject mail message over a certain size - do not use a consistent set of mapping - cannot handle non-textual data - do not adhere completely to the SMTP standards	8M
c)	- MIME - version - Content type - Content-Transfer-Encoding - Content-ID	4M
4 a)	<pre> graph TD subgraph MHS [Message Handling System] MUA1[MUA - Message Author] -- SMTP --> MSA[MSA] MSA -- SMTP --> MTA1[MTA] MTA1 -.-> MTA2[MTA] MTA2 -.-> MTA3[MTA] MTA3 -- "SMTP (SMTP, local)" --> MDA[MDA] MDA -- "SMTP (SMTP, local)" --> MS[MS] MS -- "IMAP, POP, local" --> MUA2[MUA - Message Recipient] end </pre>	- 4M - 5M exp - 5M

Question Number	Solution	Marks Allocated
4	<p style="text-align: right;">P-3/5</p> <p style="text-align: center;">↓ RFC 5322 Message</p>	<p style="text-align: right;">6M</p> <p style="text-align: right;">Exp 4M</p>
5 a)	<ul style="list-style-type: none"> - Secure branch office connectivity over the internet - Secure remote access over the internet - Establishing extranet and intranet connectivity with partners - Enhancing electronic Commerce Security 	<p style="text-align: right;">With Exam</p> <p style="text-align: right;">- 8M</p>
b)		<p style="text-align: right;">4M</p> <p style="text-align: right;">Exp 4M</p>
c)	<ul style="list-style-type: none"> - Access control - connectionless integrity - Data origin authentication - Rejection of replayed packets - Confidentiality, - Limited traffic confidentiality 	<p style="text-align: right;">4M</p>

Question Number	Solution	Marks Allocated
<p>6 a)</p>	<p style="text-align: right;">P-4/5</p> <p>5M</p> <p>5M</p> <p>3M</p> <p>3M</p> <p>2M</p> <p>2M</p>	
<p>7 a)</p> <p>b)</p> <p>c)</p> <p>8 a)</p>	<p>At least 4 - comparison</p> <p>Detailed Expⁿ of Signature based Malware</p> <p>Management of functionality</p> <ul style="list-style-type: none"> Confidentiality Integrity availability <p>Heading fields :</p> <ul style="list-style-type: none"> - Antipattern Name - Also known as - Refactored solution Name - Unbalanced primal forces - Anecdotal Evidence <p>Body fields</p> <ul style="list-style-type: none"> - Background - Antipattern solⁿ - Cause, symptoms, and consequence - Known Exceptions - Refactored solution and examples - Related solution 	<p>4M</p> <p>8M</p> <p>8M</p> <p>with Expⁿ</p> <p>5+5</p> <p>10M</p>

Question Number	Solution	Marks Allocated
5)	Exp ⁿ . of unpatched Application ——— ——— " — Webify Evergreening ———	5M 5M
9 a)	Business Question Analysis } - Document Mining } With - Hierarchy formation } Ex ⁿ ← 10M - Enterprise workshop - Matrix Mining	10M
b)	- Get organized } - Breakout } With - Flipcharts } Ex ⁿ ← 10M - Time Management - Ground Rules - Ideal parking lot	10M
10 a)	Mention typical re-imaging Sequence for the windows OS (All 6-steps)	10M
b)	Discuss all 8. Nine - Sequence	10M

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