

# B.G.S INSTITUTE OF TECHNOLOGY

B.G Nagara, Nagamangala Tq, Mandya District- 571448

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

ENGINEERING



NETWORK AND CYBER SECURITY  
(15EC835)

**8<sup>th</sup> SEM E&C- CBCS Scheme**

**EXPECTED QUESTIONS -1 TO 5<sup>TH</sup> MODULES**

**EXPECTED QUESTIONS - NETWORK AND CYBER SECURITY****MODULE-1**

1. Explain secure socket layer (SSL) protocol stack with a neat diagram and define the different parameters used in session and connection states. **(10M)**  
**Page No: 4-6**
2. Discuss security socket layer (SSL) record protocol in terms of fragmentation, compression and encryption. **(10M)**  
**Page No: 6-8**
3. Explain the various phases of SSL handshake protocol. **(12M)**  
**Page No: 10-13**
4. Explain the two SSL concepts with their parameters. **(10M)**  
Or  
What is the difference b/w SSL connection and SSL session? **(04M)**  
**Page No: 5-6**
5. Explain SSH Protocol stack. **(8M)**  
**Page No: 21-22**
6. Explain SSH Transport Layer Protocol Packet Formation. **(8M)**  
**Page No: 23-24**
7. Explain SSH Transport Layer Packet Exchanges. **(6M)**  
**Page No: 32-33**

**MODULE-2**

1. Explain PGP.(06M)  
**Page No: 2**
2. With a neat diagrams, Explain PGP Cryptographic Functions or PGP Functions (Authentication, Confidentiality, Confidentiality and Authentication). (14M)  
**Page No: 4-5**
3. With a neat diagram, explain RADIX-64 conversion. ( 06M OR 08M )  
**Page No: 11-13**
4. Write a short note on S/MIME and RFC 5322. (06M)  
**Page No: 13-14**
5. Discuss multipurpose internet mail extensions (MIME).(10M)  
**Page No: 14-15**
6. With a neat diagram, explain internet mail architecture.(10M)  
**Page No: 27-28**
7. With a neat diagram, explain DKIM strategy OR DKIM Deployment.(10M)  
**Page No: 31-32**
8. With a neat diagram, explain DKIM functional flow. ( 10M)  
**Page No: 32-33**

**MODULE-3**

1. With neat diagrams, explain ip security scenario. **(8M)**  
**Page No: 3-4**
2. Discuss transport and tunnel modes. **(8M)**  
**Page No: 6-7**
3. With a neat diagrams, explain ip traffic processing (Outbound and in-bound packets).**(10M)**  
**Page No: 11-13**
4. With a neat diagram, explain ESP Packet format. **(10M)**  
**Page No: 14-15**
5. With a neat diagram, explain anti – reply service. **(6M)**  
**Page No: 16-17**
6. Discuss transport mode ESP (IPv4&IPv6) and tunnel mode ESP (IPv4&IPv6). **(12M)**  
**Page No: 17-20**
7. With a neat diagram, explain basic combinations of security associations. **(10M)**  
**Page No: 24-25**
8. With a neat diagram, explain IKE header format. **(8M)**  
**Page No: 32-33**
9. Write a short note on cryptographic suites. **(5M)**  
**Page No: 35-36**

**MODULE-4**

1. Discuss Security Architecture. **(5M)**  
**Page No: 2**
2. Discuss document driven certification and accreditation. **(6M)**  
**Page No: 3-4**
3. Discuss policy driven security certifications. **(6M)**  
**Page No: 4-5**
4. With a neat diagram, Discuss Antipatterns Concept. **(6M)**  
**Page No: 6-7**
5. Discuss forces in cyber antipatterns. **(6M)**  
**Page No: 7-8**
6. Discuss Cyber Antipattern Templates and its types. **(10-12M)**  
**Page No: 8-9**
7. Discuss Can't Patch Dumb. **(6M)**  
**Page No: 11**
8. Discuss Never Read the Logs. **(6M)**  
**Page No: 15**
9. Discuss No Time for Security. **(6M)**  
**Page No: 22**

**MODULE-5**

1. Explain the role of zachman framework in Cyber security( only explanation).(6-8M)  
**Page No: 2**
2. With a neat diagram, explain the Zachman framework for enterprise architecture.  
(10M)  
**Page No: 2-3**
3. Discuss primitive models versus composite models. (8M)  
**Page No: 4**
4. Discuss architectural problem solving patterns.(12M)  
**Page No: 5-6**
5. Discuss mini patterns for problem solving meetings.(8M)  
**Page No: 8-9**
6. Discuss managing administrator and root accounts. (8M)  
**Page No: 10-11**
7. Discuss installing system protection / anti malware(Host based security(HBS)).(8M)  
**Page No: 18-19**
8. Write a short note on Configuring firewalls.(5M)  
**Page No: 21**

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**8<sup>th</sup> SEM E&C- CBCS Scheme**

**QUESTION BANK -1 TO 5<sup>TH</sup> MODULES**

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**QUESTION BANK – NETWORK AND CYBER SECURITY****MODULE-1****MAY/JUNE-2010**

1. Explain secure socket layer (SSL) protocol stack with a neat diagram and define the different parameters used in session and connection states. (10M)

**DEC-2010**

1. Explain the various phases of SSL handshake protocol. (12M)

**JUN/JULY-2017**

1. Discuss security socket layer (SSL) record protocol in terms of fragmentation, compression and encryption. (10M)

**JUNE/JULY-2011**

1. Explain the two SSL concepts with their parameters. (10M)

**DEC-2011**

1. With a diagram, explain handshake protocol action.(8M)
2. Explain SSL protocol stack. (4M)

**JUNE-2012**

1. Discuss SSL record protocol in terms of fragmentation, compression and encryption.(10M)

**DEC-2012**

1. Explain SSL architecture with neat diagram. (10M)
2. What is the difference b/w SSL connection and SSL session? (04M)

**JUNE/JULY-2013**

1. List different types of threats and consequence when using the web. Also countermeasures to be taken. (08M)



2. Elucidate SSL architecture. (08M)

**JAN-2015**

1. Explain the various phases of SSL handshake protocol. (10M)

**DEC/JAN-2016**

1. Explain the SSL architecture. (10M)

**JUNE/JULY-2019**

1. Explain the operation of SSL record protocol with a neat sketch.
2. Explain SSH transport layer protocol packet formation with Neat Sketch
3. Explain the 4 Phases of Handshake Protocol with a diagram
4. Describe SSL connection and SSL session detail.

**DEC-2019/JAN-2020**

1. Define various parameters that are associated with session state and connection State of SSL Protocol.
2. Explain the Additional alert codes in TLS over SSLVs. Describe SSL record protocol
3. With relevant diagram explain the various phases of handshake protocol.
4. Discuss sequence of steps involved during message exchange in user authentication protocol of SSH.

**AUG/SEP-2020**

1. Differentiate b/w SSL connection SSL session.
2. Discuss the overall operation of SSL Record Protocol.
3. What is port forwarding? Discuss the two types of port forwarding supported by SSH Protocol.
4. Explain the SSL Handshake Protocol Action.
5. Discuss the SSH protocol stack in Details.

**NOV-2020**

1. Write the comparison of threats on the web
2. What is port forwarding? Explain local and remote forwarding.
3. Explain different phases in a SSL Handshake Protocol
4. Explain the following with respect to transport layer security:  
a) Pseudorandom function, b) Alert codes.

**QUESTION BANK – NETWORK AND CYBER SECURITY****MODULE-2**

1. Explain PGP. **06M**
2. With a neat diagrams, Explain PGP Cryptographic Functions or PGP Functions (Authentication, Confidentiality, Confidentiality and Authentication). **14M**
3. With a neat diagram, Explain E-mail Compatibility or Transmission and Reception of PGP Messages. **08M**
4. With a neat diagram, explain key identifiers or PGP message format. **08M**
5. With a neat diagram, Explain PGP message generations or PGP message transmission and reception or key rings. **12M**
6. With a neat diagram, explain RADIX-64 conversion. **06M OR 08M**
7. Explain S/MIME. **06M**
8. Explain RFC 5322. **06M**
9. Discuss multipurpose internet mail extensions (MIME). **10M**
10. Discuss MIME content types. **08M or 10M**
11. Short note on 1) MIME transfer encodings 2) native and canonical form 3) S/MIME functionality 4) S/MIME messages. **12M or 14M**
12. Discuss cryptographic algorithms or cryptographic algorithms used in S/MIME .**06M**
13. Discuss S/MIME certificate processing. **8M or 10M**
14. Explain domain keys identified mail. **06M**
15. With a neat diagram, explain internet mail architecture. **10M**
16. Discuss E-MAIL threats. **10M**
17. With a neat diagram, explain DKIM strategy OR DKIM Deployment. **10M**
18. With a neat diagram, explain DKIM functional flow. **10M**

**QUESTION BANK – NETWORK AND CYBER SECURITY****MODULE-3**

1.	Discuss IP security overview.	<b>06M</b>
2.	Discuss applications of IPsec.	<b>06M</b>
3.	With neat diagrams, explain ip security scenario.	<b>08M</b>
4.	Discuss benefits of IPsec.	<b>04M</b>
5.	Discuss IPsec documents.	<b>05M</b>
6.	Discuss transport and tunnel modes.	<b>09M</b>
7.	Discuss ip security policy.	<b>04M</b>
8.	Discuss security associations.	<b>10M</b>
9.	Discuss security association database.	<b>05M</b>
10.	Discuss security policy database.	<b>05M</b>
11.	With a neat diagram, explain ip traffic processing.	<b>10M</b>
12.	Discuss encapsulating security payload.	<b>03M</b>
13.	With a neat diagram, explain ESP format.	<b>08M</b>
14.	With a neat diagram, explain anti – reply service.	<b>06M</b>
15.	With a neat diagram, explain transport and tunnel modes.	<b>08M</b>
16.	With a neat diagram, explain transport mode ESP.	<b>08M</b>
17.	With a neat diagram, explain tunnel mode ESP.	<b>06M</b>
18.	Discuss authentication plus confidentiality.	<b>10M</b>
19.	With a neat diagram, explain basic combinations of security associations.	<b>10M</b>
20.	Discuss internet key exchange.	<b>05M</b>
21.	Discuss features of IKE key determination.	<b>08M</b>
22.	With a neat diagram, explain IKE v2 exchanges.	<b>10M</b>
23.	With a neat diagram, explain IKE header format.	<b>08M</b>
24.	Discuss IKE payload types.	<b>06M</b>
25.	Discuss cryptographic suites.	<b>10M</b>

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**QUESTION BANK – NETWORK AND CYBER SECURITY****MODULE-4**

1. Discuss Security Architecture. **5M**
2. Discuss Antipattern: signature based malware detection versus polymorphic Discuss threads, document driven certification and accreditation. **6M**
3. Discuss policy driven security certifications. **6M**
4. Discuss Refactored solution: reputational, behavioural and entropy based malware detection. Detection versus polymorphic threads. **6M**
5. With a neat diagram, explain Antipatterns Concept. **6M**
6. Discuss forces in cyber antipatterns. **6M**
7. Discuss Cyber Antipattern Templates and its types.10-12M **10-12M**
8. Discuss cyber security Antipattern catalog.
9. Discuss Can't Patch Dumb. **8M**
10. Discuss Unpatched Applications. **8M**
11. Discuss Never Read the Logs. **8M**
12. Discuss Networks Always Play by the Rules. **8M**
13. Discuss Hard on the Outside Goopy in the Middle. **8M**
14. Discuss Webify Everything. **8M**
15. Discuss No Time for Security. **8M**
16. Short note on 1) Can't Patch Dumb. 2) Hard on the Outside, Goopy in the Middle. 3) Webify Everything. 4) No Time for Security. **12M**
17. Short note on 1) Unpatched Applications.2) Never Read the Logs.3) Networks Always Play by the Rules.4) Hard on the Outside Goopy in the Middle. **12M**

**QUESTION BANK – NETWORK AND CYBER SECURITY****MODULE-5**

1. With a neat diagram, explain the zachman framework for enterprise architecture. **10M**
2. Discuss primitive models versus composite models. **8M**
3. Discuss architectural problem solving patterns. **8M**
4. Discuss enterprise workshop. **6M**
5. Discuss matrix mining. **6M**
6. Discuss mini patterns for problem solving meetings. **8M**
7. Discuss managing administrator and root accounts. **8M**
8. Short note on 1) windows (managing administrator and root accounts),2)Linux and unix,3)VMware. **8M**
9. Discuss installing hardware. **10M**
10. Short note on 1)windows (re-imaging operating systems ),2)linux,3 )VMware b4)other oses . **8M**
11. Discuss windows (re-imaging operating systems). **6M**
12. Discuss installing system protection / anti malware. **8M**
13. Short note on 1) windows (installing system protection / anti malware),  
2) Linux, 3) VMware. **8M**
14. Discuss Configuring firewalls. **10M**