

**Second Year B.C.A. Sem - II Examination**  
**Paper - 15BCA210**  
**Network Security**

Time : Three hours]

[Full Marks - 60

- N.B. :**
- i) All questions carry equal marks
  - ii) Due credit will be given to neatness & adequate dimensions.
  - iii) Assume suitable data wherever necessary.
  - iv) Illustrate your answer with the help of neat sketches.
  - v) Use Blue/Black ink/refill only for writing the answer book.

- Q.1 Choose correct alternatives. 5
- a) The sender "signs" a message as :
    - i) Digital Signature      ii) Artificial Signature
    - iii) Encrypted Signature    iv) All of the above
  - b) In encryption :
    - i) Public key is used      ii) Private key is used
    - iii) Both public and private iv) None of the above
    - keys are used
  - c) AES stands for
    - i) Advanced Encryption Standard
    - ii) Advanced Encryption System
    - iii) Advanced Encryption Suggestion
    - iv) None of the above
  - d) A \_\_\_\_ is a program that can infect other programs by modifying them, the modification includes a copy of virus program, which can go on to infect other programs.
    - i) Worm                              ii) Virus
    - iii) Zombie                          iv) Trap doors

e) A \_\_\_\_ is a small program embedded inside of a GIF image.

- i) Web bug                      ii) Cookie
- iii) Spyware application    iv) Spam

- Q.2 a) Explain a module for network security.                      5  
b) Explain symmetric cipher model of encryption.                      6

OR

- Q.3 a) Explain transposition techniques of encryption.                      5  
b) What are the security trends and also explain security attacks ?                      6

- Q.4 a) Explain:                      5  
i) Block Cipher                      ii) Stream Cipher  
b) Explain design principles of block cipher.                      6

OR

- Q.5 a) Explain evaluation criteria of AES.                      5  
b) Explain in detail data encryption standard.                      6

- Q.6 a) Explain Euclidean algorithm.                      6  
b) What is Groups, Rings and Fields.                      5

OR

- Q.7 a) Explain modular arithmetic in detail.                      5  
b) Explain Euler's theorem with example.                      6

- Q.8 a) Explain:                      6  
i) Digital Signatures                      ii) Hash function  
b) Explain principles of public key cryptosystems.                      5

OR

- Q.9 a) Explain RSA algorithm.                      6  
b) Explain authentication and message authentication codes in short.                      5

- Q.10 a) Explain PGP ( Pretty Good Privacy ).                      5  
b) Explain:                      6  
i) Intruders  
ii) Fire walls  
iii) Viruses

OR

- Q.11 a) What is S / MIME and its functionality?                      5  
b) Explain IP Security overview and its architecture.                      6

\*\*\*\*\*