CNS ASSIGNMENTS

B.Tech 5th Semester, CSE

1. Define the three security goals? And explain each one with suitable examples. .
2. Name some active attacks. Distinguish between passive and active security attacks. Name some passive attacks.

3. Define the type of security attack in each of the following cases:
    a. A student breaks into a professor's office to obtain a copy of the next day's test.
    b. A student gives a check for $10 to buy a used book. Later she finds that the check was cashed for $100.
    c. A student sends hundreds of e-mails per day to another student using a phony return e- mail address.

4. What is 'masquerade'? Which principle of security is breached because of that?

5. Why is confidentiality an important principle of security? Think about ways of achieving the same.
6. What is repudiation? How can it be prevented in real life?

7. Why are some attacks called passive? Why other attacks are called active?

8. Using the Euclidean algorithm, find the greatest common divisor of the following pairs of integers.
    a. 88 and 220
    b. 300 and 42
    c. 24 and 320
    d. 401 and 700

9. Using the extended Euclidean algorithm, find the greatest common divisor of the following pairs and the value of s and t.
    a. 4 and 7
    b. 291 and 42
    c. 84 and 320
    d. 400 and 60

10. Perform the following operations using reduction first.
    a. (273 + 147) mod 10
    b. (4223 + 17323) mod 10
    c. (148 + 14432) mod 12
    d. (2467 + 461) mod 12

11. Find the multiplicative inverse of each of the following integers in Z180 using the extended Euclidean algorithm.
    a. 38
    b. 7
    c. 132

d. 24

12. Find the particular and the general solutions to the following linear Diophantine equations.

a. $25x + 10y = 15$

b. $19x + 13y = 20$

c. $14x + 21y = 77$

d. $40x + 16y = 88$

13. Show that there are no solutions to the following linear Diophantine equations:

a. $15x + 12y = 13$

b. $18x + 30y = 20$

c. $15x + 25y = 69$

d. $40x + 30y = 98$

14. Find all solutions to each of the following linear equations:

a. $3x \equiv 4 \pmod 5$

b. $4x \equiv 4 \pmod 6$

c. $9x \equiv 12 \pmod 7$

d. $256x \equiv 442 \pmod{60}$

15. Find all solutions to each of the following linear equations:

a. $3x + 5 \equiv 4 \pmod 5$

b. $4x + 6 \equiv 4 \pmod 6$

c. $9x + 4 \equiv 12 \pmod 7$

d. $232x + 42 \equiv 248 \pmod{50}$