Write outputs

1. (5%) A=[1 2;3 4]; m=2; n=2; repmat(A,m,n)
2. (5%) A=reshape(1:16,4,4); A([3 1 2],:)

Write codes

3. (5%) A=reshape(1:4,2,2); find inverse of A
4. (5%) Solve

$$2x + y - z = 1$$
$$-3x - 2y + 5z = 0$$
$$x + y + z = 5$$

5. (5%) A=[1 2;3 4];A=repmat(A,2,2); A(1,1)=4; A(4,4)=1; find determinant of A
6. (20%) Draw flow chart to calculate S(N) for given N

$$S(N) = \sum_{n=1}^{N} \left(\left\lfloor \frac{n^2}{5} \right\rfloor + \left\lceil \frac{2 * n}{3} \right\rceil \right)$$

7. (20%) Write a matlab function to implement flow chart 6.

8. (20%) Program check by Name _____ time _____

   N=20, S(N)=?

   N=10, S(N)=?

9. (20%) Let s denote a random variable and N denote a positive integer. Draw a for-loop flow chart to generate a sequence of N characters of ‘A’, ‘T’, ‘C’ and ‘G’ with probabilities Pr(s=’A’) = 1/3, Pr(s=’T’)=1/4, Pr(s=’C’)=1/4 and Pr(s=’G’)=1/6

10. (20%) Let S denote a sequence that is generated by flow chart 9. Draw a flow chart to count ‘A’, ‘T’, ‘C’ and ‘G’ for given S.