

Source code and result for Question 4:

```
t=matrix(c(0.7848,-0.324,0.3924,-0.108,-0.324,0.7848,-0.324,0.3924,0.3924,-0.324,0.7848,-0.324,-0.108,0.3924,-0.324,0.7848),nrow=4,ncol=4,byrow=TRUE)
t
```

```
##           [,1]    [,2]    [,3]    [,4]
## [1,]  0.7848 -0.3240  0.3924 -0.1080
## [2,] -0.3240  0.7848 -0.3240  0.3924
## [3,]  0.3924 -0.3240  0.7848 -0.3240
## [4,] -0.1080  0.3924 -0.3240  0.7848
```

```
e=matrix(c(-0.324,0.3924,-0.108,0),nrow=4,ncol=1,byrow=TRUE)
e
```

```
##           [,1]
## [1,] -0.3240
## [2,]  0.3924
## [3,] -0.1080
## [4,]  0.0000
```

```
a=solve(t)%*%e
a
```

```
##           [,1]
## [1,] -0.2754719
## [2,]  0.5744962
## [3,]  0.1242339
## [4,] -0.2738679
```

```
o=matrix(c(0,0,0,0),nrow=4,ncol=1,byrow=TRUE)
an=solve(t)%*%o
an
```

```
##           [,1]
## [1,]  0
## [2,]  0
## [3,]  0
## [4,]  0
```