Experiment No.:09

```
clc;
clear all;
close all;
code_length=0;
symbols=[1:5]
p=[0.4 0.15 0.15 0.15 0.15];
[dict,avglen]=huffmandict(symbols,p)
avginfo=0;
for i=1:length(p)
   avginfo=avginfo+p(i)*log2(1/p(i));
end
Efficiency=avginfo*100/avglen
sig=randsrc(1,100,[symbols;p]);
hcode=huffmanenco(sig,dict);
decode=huffmandeco(hcode,dict);
code_length=length(hcode)
display(avginfo);
display(Efficiency);
isequal(sig,decode)
```

Output:

```
symbols =

    1    2    3    4    5


dict =

  5×2 cell array


    {[1]}    {[    1]}

    {[2]}    {[0 0 1]}

    {[3]}    {[0 0 0]}

    {[4]}    {[0 1 1]}

    {[5]}    {[0 1 0]}
```

```
avglen =
    2.2000

Efficiency =
   98.6796

code_length =
   224

avginfo =
    2.1710

Efficiency =
   98.6796

ans =
  logical
   1
```