Code:-

```python
#varad patil
#120A2036

import math
px1 = float(input('Enter the probability ='))
px2 = float(input('Enter the probability ='))
px3 = float(input('Enter the probability ='))
px4 = float(input('Enter the probability ='))
rs = int(input('Enter the symbol rate ='))
print('probabilities are:- ',px1,'\t',px2,'\t',px3,'\t',px4,'\t')
Ix1 = round(math.log2(1/px1),3)
Ix2 = round(math.log2(1/px2),3)
Ix3 = round(math.log2(1/px3),3)
Ix4 = round(math.log2(1/px4),3)
print('self inforamtion are:-',Ix1,'\t',Ix2,'\t',Ix3,'\t',Ix4,'\t')
Hx = px1*Ix1+px2*Ix2+px3*Ix3+px4*Ix4
print('Entrophy :',round(Hx,3))
R = Hx*rs
print('Average information rate is :-',round(R,3))
print("varad Patil\n120A2036")
```

Output:-

```
Enter the probability =0.2
Enter the probability =0.3
Enter the probability =0.1
Enter the probability =0.4
Enter the symbol rate =1000
probabilities are:-  0.2     0.3     0.1     0.4
self inforamtion are:- 2.322    1.737   3.322   1.322
Entrophy : 1.847
Average information rate is :- 1846.5
varad Patil
120A2036


Process finished with exit code 0
```