Q7

In [58]:

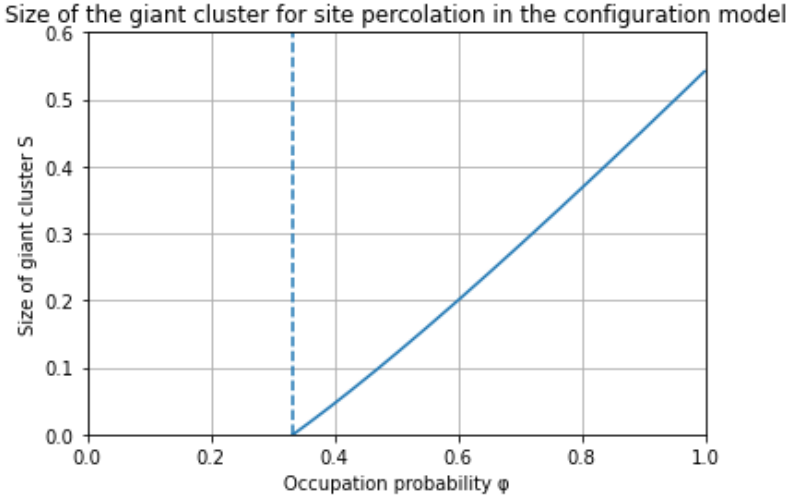
```
# importing libraries
import numpy as np
from math import sqrt
from matplotlib import pyplot as plt

# Creating an array for φ with [0.01, 0.02,0.03 ..... 1.00]
phi = np.arange(0,1,0.001)

# Size of giant Cluster S
S = [(3/2)*x - sqrt((1/4)*(x**2) + x*((0.6**-1) - 1)) for x in phi]
```

In [60]:

```
plt.plot(phi,S)                                  # ploting phi vs. S
plt.xlim(0,1)                                     # Limiting yaxis from 0 to 1
plt.ylim(0,0.6)                                  # Limiting yaxis from 0 to 0.6
plt.axvline(1/3,ls='--')                       # ploting the verticle line
plt.ylabel("Size of giant cluster S")            # y axis label
plt.xlabel("Occupation probability φ")         # y axis label
plt.title("Size of the giant cluster for site percolation in the configuration model")        # title
plt.grid()                                         # showing the grid
plt.show()                                        # ploting the plot.
```



In [ ]: