Maximum Matching

July 9, 2020

In [ ]:
```
import networkx as nx
import pygraphviz as pgv
from nxpd import draw, nxpdParams
nxpdParams['show'] = 'ipynb'


G = nx.Graph()
G.add_edges_from([(1, 'b'), (1, 'c'), (1, 'd'), (2, 'a'), (2, 'c'), (2, 'e'), (3, 'b'),
                  (3, 'c'), (3, 'd'), (4, 'a'), (4, 'e'), (5, 'a'), (5, 'e')])
```

In [ ]:
```
if nx.bipartite.is_bipartite(G):
    left, right = nx.bipartite.sets(G)
    for v in left:
        G.node[v]['color'] = 'blue'
    for v in right:
        G.node[v]['color'] = 'green'
else:
    print("This graph is not bipartite")
```

In [ ]:
```
draw(G, layout='circo')
```

In [ ]:
```
M = nx.max_weight_matching(G)
print(M)
for v1, v2 in M.items():
    G[v1][v2]['color'] = 'red'
draw(G, layout='circo')
```