

- An S -component of a connected graph G

2. State the following theorems:

- Euler's Formula for planar graphs

- Five-Colour Theorem

- Four-Colour Theorem

- Tait's Theorem

- Menger's Theorem on connectivity (include both the vertex and edge versions) and define all needed concepts used to state the theorems

- Fan Lemma

- Characterization of a chordal graph

4. Show how Euler's formula can be used to prove that neither K_5 nor $K_{3,3}$ is planar. Provide a detailed solution.