MAU22C00: TUTORIAL 13 PROBLEMS
GRAPH THEORY

1) Let (V, E) be the graph with vertices a, b, c, d, e, and f and edges ab, ac, bc, bd, cd, de, df, and ef.

(a) Does this graph have an Eulerian trail? Justify your answer.

(b) Does this graph have an Eulerian circuit? Justify your answer.

2) For what type of n does the complete graph K_n have an Eulerian circuit? Justify your answer.

3) For what type of n does the complete graph K_n have an Eulerian trail that is not a circuit? Justify your answer.

4) For what type of p and q does the complete bipartite graph $K_{p,q}$ have an Eulerian circuit? Justify your answer.

5) For what type of p and q does the complete bipartite graph $K_{p,q}$ have an Eulerian trail that is not a circuit? Justify your answer.

6) Illustrate Lemma B in lecture 36 by finding the longest circuit starting and ending at vertex G, which has no edges in common with circuit $EFGE$ in the graph with vertices A, B, C, D, E, F, G, H, and I, and edges AI, BI, CI, HI, AB, AG, AF, BC, BG, CD, CG, DG, DE, DH, EF, EG, EH, FG, and FH.