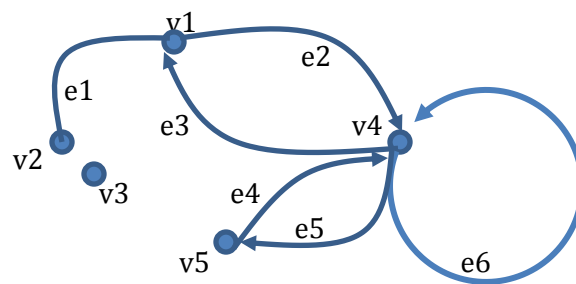Instructions
- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.

1. Define the following graphs.
   (a) Simple digraph
   (b) Multigraph
   (c) Pseudograph
   (d) Complete graph
   (e) Isomorphic graph

2. Based on the following graph, answer the questions.

   (a) Name the edge (v1, v4).
   (b) Vertex v2 and v1 are joined by an edge e1. Name the vertices.
   (c) Vertex v3 is an isolated vertex. Define it.
   (d) Edges e3 and e2 are associated with both vertex v1 and v4. Name these edges.
   (e) Name the graph shown. Explain your answer.
   (f) Find the indeg of vertex v4.

3. Explain why the two graphs below are not isomorphic.