

**DISCRETE MATHEMATICS (DBM2033)**

Session December 2017

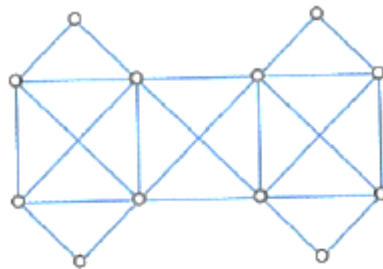
**SELF-EXERCISE 9**

Instructions

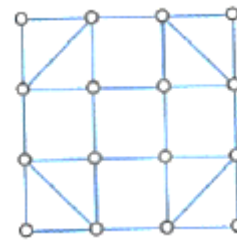
- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.

1. Define
  - (a) Euler Path
  - (b) Euler Circuit
  - (c) Hamilton Path
  - (d) Hamilton Circuit
2. For the following graphs, find an Euler circuit. Show your answer by labeling the edges 1, 2, 3, ... and so on in the order in which they are traveled.

(a)

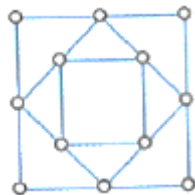


(b)

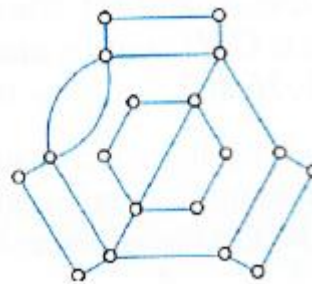


3. For the following graphs, decide whether the graph (a) has an Euler circuit, (b) has an Euler path, (c) has neither an Euler circuit nor an Euler path.

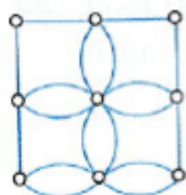
(a)



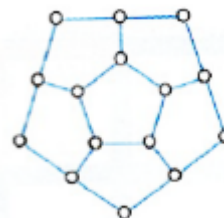
(b)



(c)

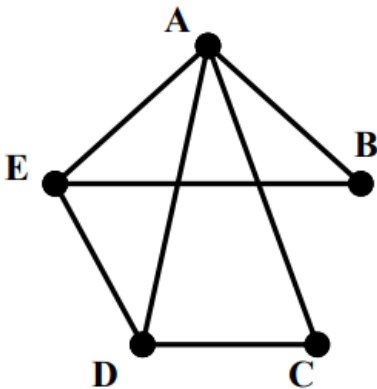


(d)

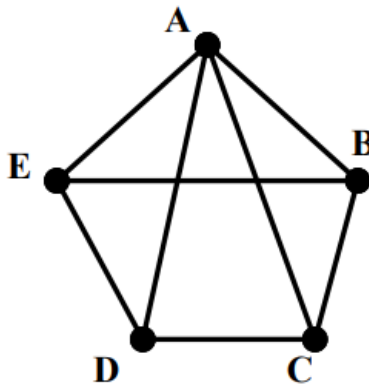


4. Find all Hamilton circuits starting from vertex A.

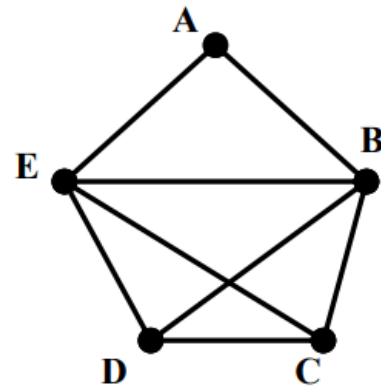
**GRAPH 1**



**GRAPH 2**



**GRAPH 3**

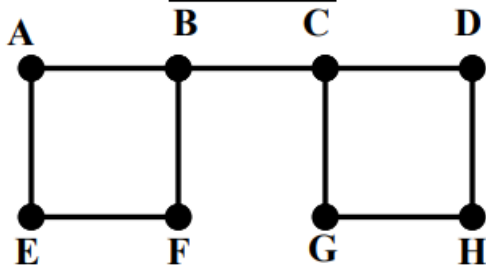


For Question 5-6, refer to the following graphs.

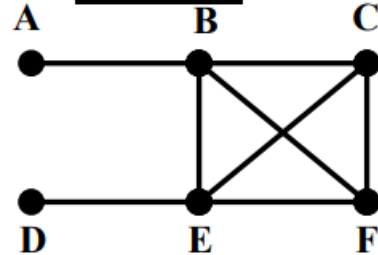
5. Find a Hamilton Path. If it does not exist, then give a brief explanation.

6. Find a Hamilton circuit. If it does not exist, then give a brief explanation.

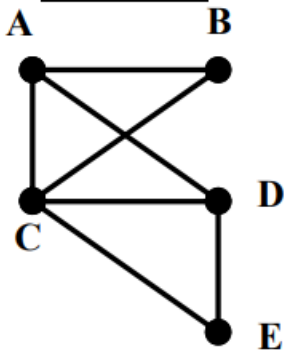
**GRAPH 1**



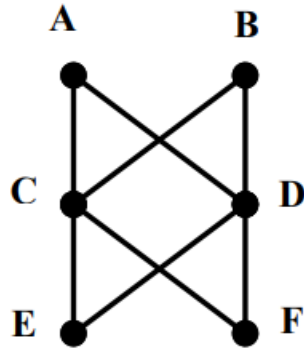
**GRAPH 2**



**GRAPH 3**



**GRAPH 4**



**GRAPH 5**

