
 <b>KEMENTERIA PENDIDIKAN MALAYSIA</b>  <b>JABATAN MATEMATIK, SAINS DAN KOMPUTER</b>		COURSE CODE/ COURSE NAME		DBM2033 DISCRETE MATHEMATICS	
		COURSEWORK ASSESSMENT		TUTORIAL 3	
		SESSION		DECEMBER 2018	
		DURATION	60 MINS	CLO1	
CLO2	20 MARKS				
CLO3					
NAME					
REGISTRATION NO.					
PROGRAMME/ SECTION		TOTAL MARKS		20 MARKS	

### Instructions

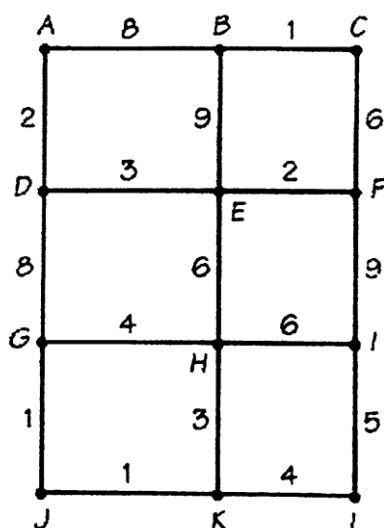
- Answer ALL questions. Write your answers in the spaces provided.
- Show your working to get marks. You may use a non-programmable scientific calculator.

### Question 1

CLO1, C3

[6 marks]

Identify the shortest route with the minimum cost spanning tree on the following graph:



**Minimum cost for 11 edges (condition) is 34. (6 marks)**

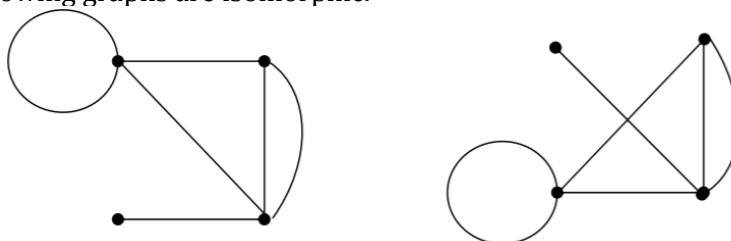
**If 11 edges added, but the total cost given according to the range 35-36 (4 marks); 37-38 (2 marks); >38 (1 mark).**

### Question 2

CLO1, C2

[4 marks]

Show that the following graphs are isomorphic.



These two graphs are isomorphic because

- With the same vertices **(1 mark)**
- With the same edges **(1 mark)**
- With the same order degrees of vertices – 4, 3, 4, 1 and 4, 3, 4, 1 **(2 marks)**

### Question 3

CL01, C2

[4 marks]

Write the correct answer for each of the following statements.

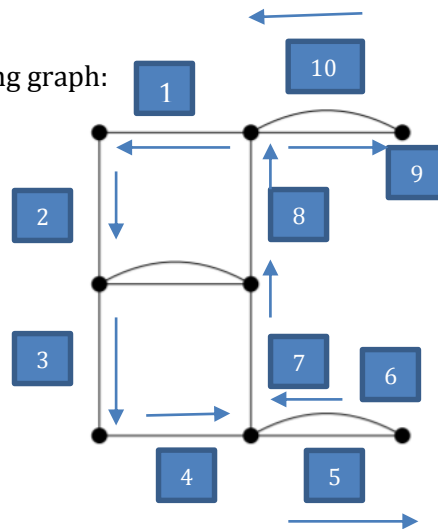
- (a) A vertex of degree zero. **Isolate vertex**
- (b) Two vertices connected to each other with a line. **Adjacent vertices**
- (c) A graph on  $n$  vertices that contains exactly one edge between each pair of distinct vertices. **Complete graph**
- (d) A graph with no loops and no multiple edges. **Simple graph / digraph**

### Question 4

CL01, C2

[6 marks]

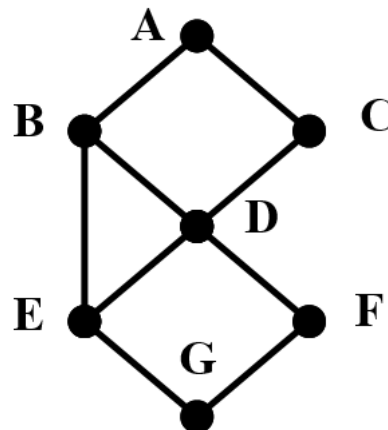
- (a) Eulerize the following graph:



**Euler circuit**

**Note: Attach with correct route of Euler circuit / explanation, 3 marks will be given.**

- (b) Find the Hamiltonian graph if exist. If not exist, explain your answer.



**Hamiltonian graph exist.**

**AND showing the Hamilton circuit with correct route (for example, C, A, B, E, G, F, D, C) /explanation**

**AND showing the Hamilton path with correct route (for example, C, A, B, E, G, F, D)/explanation**

**Then, 3 marks will be given.**