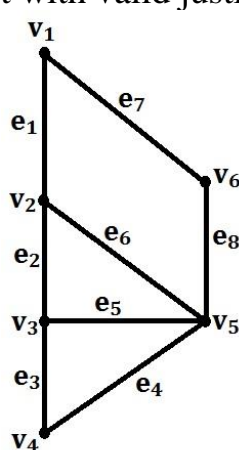
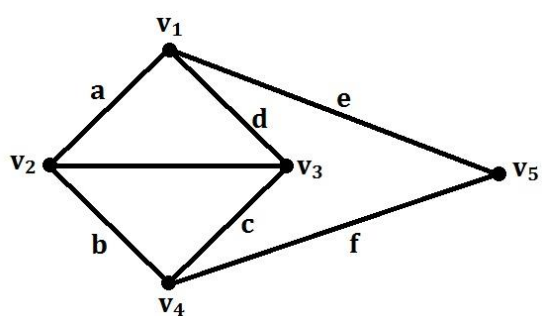


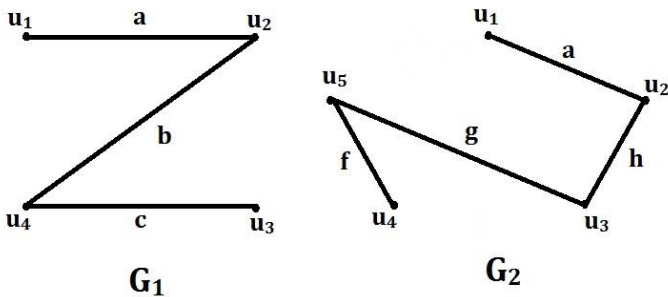
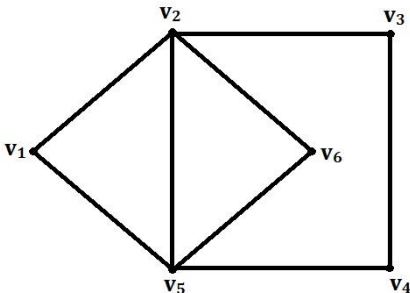
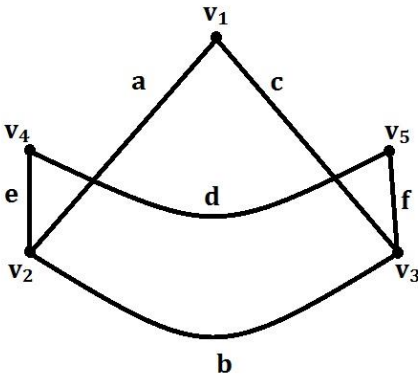
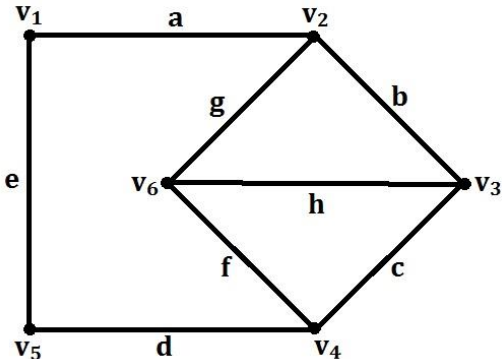


DEPARTMENT OF MATHEMATICS

Sub Code:	MAOE04	Sub:	Applied Graph Theory	Test:	01
Time :	3pm to 4pm	Term:	11.10.2021 to 05.02.2021	Marks:	30
Date:	08.12.2021	Semester:	V	Section:	Open elective

Note: Answer any **TWO** full questions. Each main question carries 15 marks

Q.No.	Questions	Blooms Level	CO's	Marks
1.	(a) Define arbitrarily traceable graphs with an example.	L1	CO1	2
	(b) Define Bipartite graph and determine whether the graph given below is Bipartite or not with valid justifications. 	L2	CO1	3
	(c) Define regular and complete graphs with examples and show that every complete graph is regular. Is converse true? Justify.	L4	CO1	5
	(d) Write a note on Konigsberg Bridge Problem.	L3	CO1	5
2.	(a) If n is number of vertices of a graph G then determine the largest possible value of n such that degree of every vertex of G is not less than 4 and number of edges of G is 19.	L3	CO1	2
	(b) Define complement of a graph and find the same for the following graph. 	L2	CO1	3
	(c) Define a minimally connected graph and show that a Graph G is tree if and only if it is minimally connected.	L4	CO1	5

	(d)	Find union, intersection, ring sum of G_1 and G_2 .			
			L3	CO1	5
3.	(a)	Find the all the circuits starting from v_3 . Label the edges if required.			
			L2	CO1	2
	(b)	Define Hamiltonian graph and determine Hamiltonian circuit from the graph given below if it exists.			
			L2	CO1	3
	(c)	From the following graph G , determine (i) Fusion of v_1 and v_2 (ii) $G-v_6$ (iii) Edge disjoint subgraphs with four vertices (iv) Decomposition of G			
			L3	CO1	5
	(d)	Prove that a graph G is Euler if and only if all the vertices are of even degree.	L4	CO1	5