Name. _____ **Student Admn. No.:** _____	**Printed Pages:01**

School of Computing Science & Engineering

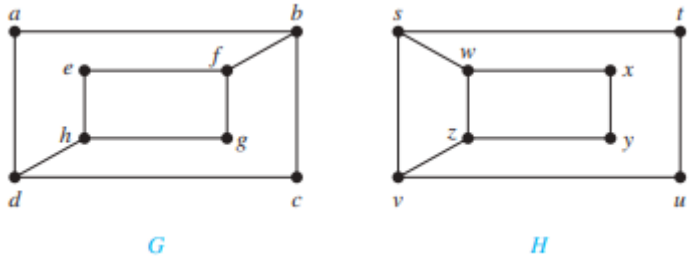
Backlog Examination, June 2023

[Programme: BCA**] [Semester:** IV **] [Batch:]**

Course Title: GRAPH THEORY **Course Code:** BCAS2013	**Max Marks: 100** **Time: 3 Hrs.**

Instructions:

1. *All questions are compulsory.*
2. *Assume missing data suitably, if any.*

		K Level	COs	Marks
	SECTION-A (15 Marks) **5 Marks each**			
1.	Explain Multi-graph. Explain with example in brief.	**K2**	CO1	5
2.	Define regular graph. With suitable example.	**K1**	CO1	5
3.	What do you mean by isomorphic graphs?	**K1**	CO3	5
	SECTION-B (40 Marks) **10 Marks each**			
4.	Explain Hamiltonian circuit and Euler Graph. Give one example for each.	**K2**	CO2	10
5.	Prove that the sum of the degrees of all vertices of a graph is even?	**K4.**	CO4	10
6.	Define isolated vertex, pendant vertex and a null graph. Show that a graph is a tree if and only if it is minimally connected.	**K3**	CO1	10
7.	Prove that the following two graphs G and H are isomorphic graphs  G H OR Prove that in a graph the number of the vertices with odd degree is even?	**K4.**	CO3	10
	SECTION-C (45 Marks) **15 Marks each**			
8.	Explain Bipartite Graph with suitable example. Draw K_3 and K_6 Regular and Complete graph	**K3**	CO1	15
9.	Define graph and its type. Explain various applications of graph. Compare between Tree and Graph?	**K4.**	CO4	15
10	Define handshaking Lemma in graph theory. A connected planer graph has 9 vertices having degrees 2, 2, 3, 3, 3, 4, 4, 4, 5. Find the number of region and edges. OR A connected graph has 10 vertices each of degree 3. How many regions representation of this planer graph split the plane? Draw it	**K3**	CO4	15