PRESIDENCY UNIVERSITY

BENGALURU

Department of Research & Development
Mid - Term Examinations - SEPTEMBER 2024

Odd Semester: Ph.D. Course Work	**Date**: 30 /09/2024
Course Code: MAT826	**Time**: 10:00am – 11:30am
Course Name: Spectral Theory and Topological Indices	**Max Marks**: 50
Department: Mathematics	**Weightage**: 25%

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 5 marks.		4Qx5M=20M
1	Explain Atom-Bond connectivity index and Zagreb index	**5 Marks**
2	Obtain is the GA index of Benzopolyperinaphthalene monoradic series.	**5 Marks**
3	Find the sum connectivity indices of Double-Wheel graph	**5 Marks**
4	Obtain the ABC indices of Hanoi graph	**5 Marks**

Part B

Answer ALL Questions. Each question carries 15 marks.		2QX15M=30M
5	If G(m,n) be a Canonical graph with |V(G)|=nm+1 , |E(G)|=2nm, then prove that i) M_1=n(n+16m-7). ii) $M_2(G)$=n(4n+32m-27).	**15 Marks**
6	Explain all degree based topological indices of chemical graphs with suitable example	**15 Marks**