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

<b>Odd Semester:</b> Ph.D. Course Work	<b>Date:</b> 28 /09/2024
<b>Course Code:</b> MAT840	<b>Time:</b> 2:00pm – 3:30pm
<b>Course Name:</b> Analysis of Algorithms and Complexity.	<b>Max Marks:</b> 50
<b>Department:</b> Mathematics	<b>Weightage:</b> 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**

<b>Answer ALL the Questions. Each question carries 5 marks.</b>		<b>4Qx5M=20M</b>
<b>1</b>	Comment on Master's method. State and prove Master's theorem.	<b>5 Marks</b>
<b>2</b>	Explain heap sort with an algorithm and example.	<b>5 Marks</b>
<b>3</b>	Write in detail about Dynamic programming.	<b>5 Marks</b>
<b>4</b>	Explain fractional Knapsack problem of greedy method.	<b>5 Marks</b>

**Part B**

<b>Answer ALL Questions. Each question carries 15 marks.</b>		<b>2Qx15M=30M</b>
<b>5</b>	Describe asymptotic notations with an examples.	<b>15 Marks</b>
<b>6</b>	a) Write a detailed note on Greedy method. b) Explain matrix chain multiplication briefly.	<b>15 Marks</b>