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**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> CIV823	<b>Time:</b> 2:00pm – 3:30pm
<b>Course Name:</b> Geometric Design of Railway Track (GDRT)	<b>Max Marks:</b> 50
<b>Department:</b> CIVIL Engineering	<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>	Explain grade compensation and its importance in railway track design.	<b>5 Marks</b>
<b>2</b>	What factors determine the speed of a train on curves?	<b>5 Marks</b>
<b>3</b>	Discuss the factors that influence the selection of a good track alignment, including the types of surveys involved.	<b>5 Marks</b>
<b>4</b>	What is a reconnaissance survey, and how is it conducted during track alignment?	<b>5 Marks</b>

**Part B**

<b>Answer ALL Questions. Each question carries 15 marks.</b>		<b>2QX15M=30M</b>
<b>5</b>	Compare and contrast the various types of surveys (traffic, preliminary, detailed) used for railway track alignment.	<b>15 Marks</b>
<b>6</b>	Discuss the relationship between the radius of a curve, train speed, and the need for super elevation in railway design.	<b>15 Marks</b>