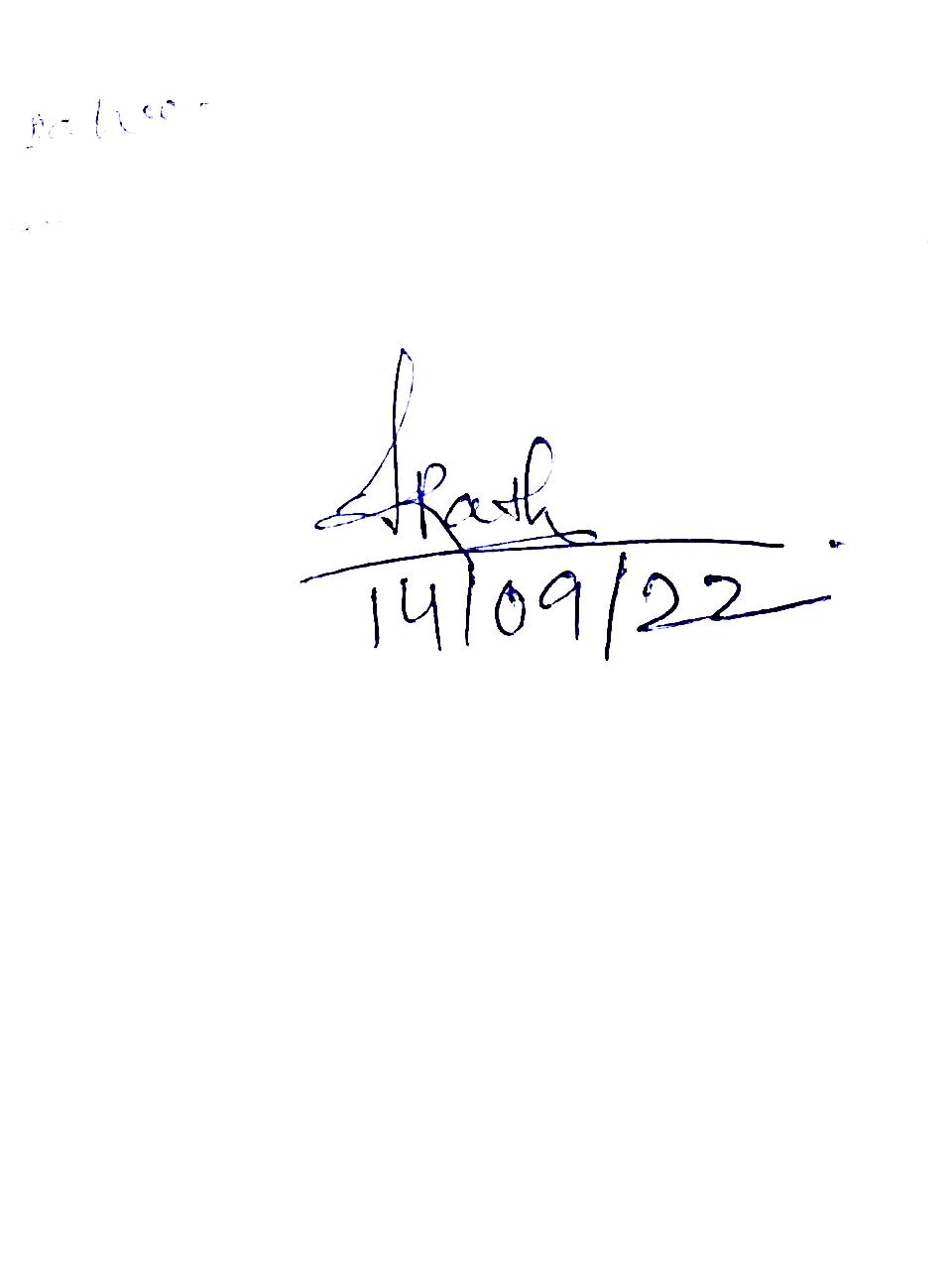
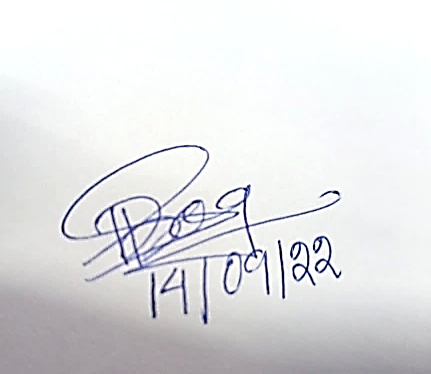
**MAHAMAYA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCE,**

**NUAPADA**

**DEPARTMENT OF CIVIL ENGINEERING**

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| **Discipline: CIVIL Engineering** | **Semester: 5th Semester** | **Name of the Teaching Faculty:**  **ER. HIMANEE RATH** |
| **Subject:**  **R & B ENGG.** | **No. of**  **Days/week**  **Class**  **Allotted:60** | **Semester from date: 15/09/2022 to date: 22 /12/2022** **No of weeks: 14** |
| **Week** | **Class Day** | **Theory Topics** |
| 1st | 1st | 1.0.Introduction 1.1 Railway terminology |
| 2nd | 1.2 Advantages of railways 1.3 Classification of Indian Railways |
| 3rd | 2. Permanent way 2.1 Definition |
| 4th | components of a permanent way |
| 2nd | 1st | Concept of gauge |
| 2nd | different gauges prevalent in India |
| 3rd | suitability of these gauges under different |
| 4th | 3.Track materials 3.1 Rails 3.1.1 Functions and requirement of rails |
| 3rd | 1st | 3.1.2 Types of rail sections , length of rails 3.1.3 Rail joints – types, requirement of an ideal joint |
| 2nd | 3..1.4 Purpose of welding of rails & its advantages 3.1.5 Creep definition, cause & prevention |
| 3rd | 3.2 Sleepers 3.2.1 Definition, function & requirements of sleepers 3.2.2 Classification of sleepers 3.2.3 Advantages & disadvantages of different types of sleepers |
| 4th | 3.3 Ballast 3.3.1 Functions & requirements of ballast 3.3.2 Materials for ballast |
| 4th | 1st | 3.4 Fixtures for Broad gauge 3.4.1 Connection of rails to rail-fishplate, fish bolts 3.4.2 Connection of rails to sleepers |
| 2nd | 4.Geometric for Broad gauge 4.1 Typical cross – sections of single |
| 3rd | double broad gauge railway track in cutting |
| 4th | embankment |
| 5th | 1st | 4.2 Permanent & temporary land width |
| 2nd | Gradients for drainage |
| 3rd | Super elevation – necessity & limiting valued |
| 4th | Numerical problem |
| 6th | 1st | Numerical problem |
| 2nd | Numerical problem |
| 3rd | Numerical problem |
| 4th | Problem solving |
| 7th | 1st | 5.0 Points and crossings |
| 2nd | 5.1 Definition |
| 3rd | necessity of Points and crossings |
| 4th | 5.2 Types of points |
| 8th | 1st | & types of crossings with tie diagrams |
| 2nd | 6.0 Laying & maintenance of track |
| 3rd | 6.1 Methods of Laying |
| 4th | maintenance of track |
| 9th | 1st | Details of a permanent way inspector |
| 2nd | Section – B : BRIDGES 7.0 Introductions 7.1 Definitions 7.2 Components of a bridge |
| 3rd | 7.3 Classification of bridges. 7.4 Requirements of an ideal bridge |
| 4th | 8.Bridge Site investigation, hydrology & planning 8.1 Selection of bridge site |
| 10th | 1st | 8.2 Bridge alignments |
| 2nd | 8.3 Determination of flood discharge |
| 3rd | 8.4 Waterway & economic span |
| 4th | 8.5 Afflux, clearance & free board 8.6 Collection of bridge design data & sub surface investigation |
| 11th | 1st | 9.Bridge foundation |
| 2nd | 9.1 Scour depth minimum depth of foundation 9.2 Types of bridge |
| 3rd | pile foundation-, pile driving, |
| 4th | well foundation – sinking of wells caission foundation |
| 12th | 1st | foundations – spread foundation |
| 2nd | 9.3 Coffer dams |
| 3rd | 10.Bridge substructure and approaches 10.1 Types of piers |
| 4th | 10.2 Types of abutments |
| 13th | 1st | 10.3 Types of wing walls |
| 2nd | 10.4 Approaches |
| 3rd | 11.0Permanent bridges 11.1 Masonry bridges |
| 4th | 11.2 Steel bridges – classification with sketches |
| 14th | 1st | 11.3 Concrete bridges – classification, brief description with sketches  11.4 IRC bridge loading |
| 2nd | 12.Culvert & cause ways 12.1 Types of culvers - brief description |
| 3rd | 12.2 Types of causeways - brief description |
| 4th | PREVIOUS YEAR QUESTION DISCUSSION |

Signature of faculty member counter signature of HOD