**LESSON PLAN**

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| **Discipline:**  Civil Engineering | **Semester:**  Fifth (5th ) | | **Name Of The Faculty:**  Er. K.B.Sethy |
| **Subject:**  Railway & Bridge Engineering | **No of days/ week class allotted:**  four(4) | | **Semester from date:** 01.07.2024 **to Date: 08** .11.2024  **No of weeks: 15** |
| **WEEK** | **CLASS DAY** | | **THEORY TOPICS** |
| **Section-A: RAILWAYS** | | | |
| 1st | 1st | **CHAPTER -1 INTRODUCTION**  Railway terminology ,Advantages of railways | |
| 2nd | Classification of Indian Railways | |
| 3rd | **Review** | |
| 4th | **CHAPTER -2 PERMANENT WAY**  Definition ,components of a permanent way | |
| 5th | Concept of gauge | |
| 2nd | 1st | different gauges prevalent in India | |
| 2nd | suitability of these gauges under different conditions | |
| 3rd | Cont. | |
| 4th | **Review** | |
| 5th | **CHAPTER -3: TRACK MATERIALS**  Rails, Functions and requirement of rails, | |
| 3rd | 1st | ***Monthly Test- 1*** | |
| 2nd | Types of rail sections, length of rails | |
| 3rd | Rail joints – types, requirement of an ideal joints | |
| 4th | Purpose of welding of rails & | |
| 5th | its advantages | |
| 4th | 1st | Creep definition, cause & prevention | |
| 2nd | Definition, function & requirements of sleepers, Classification of sleepers | |
| 3rd | Advantages & disadvantages of different types of sleepers, | |
| 4th | Ballast, Functions & | |
| 5th | requirements of ballast | |
| 5th | 1st | Materials for ballast | |
| 2nd | Fixtures for Broad gauge | |
| 3rd | Connection of rails to rail-fishplate, | |
| 4th | fish bolts | |
| 5th | Connection of rails to sleepers | |
|  |  |  | |
| 6th | 1st | ***Monthly Test- 2*** | |
| 2nd | **Review** | |
| 3rd | **CHAPTER-04: GEOMETRIC FOR BROAD GAUGE**  Typical cross – sections of single broad gauge railway track in cutting and embankment **.** | |
| 4th | Typical cross – sections of double broad gauge railway track in cutting and embankment | |
| 5th | Cont. | |
| 7th | 1st | Permanent & temporary land width ,Gradients for drainage | |
| 2nd | Super elevation – necessity & limiting valued | |
| 3rd | **Review** | |
| 4th | **CHAPTER -5 POINTS AND CROSSINGS**  Definition**,** necessity of Points and crossings | |
| 5th | Cont. | |
| 8th | 1st | Types of points & crossings with tie diagrams | |
| 2nd | ***Possible question answer discussion*** | |
| 3rd | **CHAPTER -6: LAYING & MAINTENANCE OF TRACK**  Methods of Laying & maintenance of track | |
| 4th | Details of a permanent way inspector | |
| 5th | Cont. | |
| 9th | 1st | ***Monthly Test- 3*** | |
| 2nd | **Review** | |
| **Section-B BRIDGES** | | | |
| 9th | 3rd | **CHAPTER -1 INTRODUCTIONS**  Definitions, Components of a bridge | |
| 4th | Classification of bridges | |
|  | 5th | Requirements of an ideal bridge | |
| 10th | 1st | ***Possible question answer discussion*** | |
| 2nd | **CHAPTER-02 BRIDGE SITE INVESTIGATION, HYDROLOGY & PLANNING**  Selection of bridge site, | |
| 3rd | Bridge alignments | |
| 4th | Determination of flood discharge | |
| 5th | Waterway & economic span, Afflux | |
| 11th | 1st | ***Monthly Test- 4*** | |
| 2nd | clearance & free board | |
| 3rd | **Review** | |
| 4th | **CHAPTER-03 BRIDGE FOUNDATION**  Scour depth minimum, | |
|  | 5th | depth of foundation | |
| 12th | 1st | Types of bridge, foundations  spread foundation | |
| 2nd | pile foundation- pile driving | |
| 3rd | well foundation – sinking of wells | |
| 4th | caisson foundation, Coffer dams | |
| 5th | **Review** | |
| 13th | 1st | **CHAPTER-10;BRIDGE SUBSTRUCTURE AND APPROACHES**  Types of abutments | |
| 2nd | Types of piers, | |
| 3rd | Types of wing walls, Approaches | |
| 4th | **Review** | |
| 5th | **CHAPTER-11: CULVERT & CAUSE WAYS**  Types of culvers - brief description | |
| 14th | 1st | Cont. | |
| 2nd | Types of causeways | |
| 3rd | - brief description | |
| 4th | Cont. | |
| 5th | **Review** | |
| 15th | 1st | **Previous year question answer discussion(w-21)** | |
| 2nd | **Previous year question answer discussion(w-21)** | |
| 3rd | **Previous year question answer discussion(w-22)** | |
| 4th | **Previous year question answer discussion(w-23)** | |
| 5th | **Previous year question answer discussion(w-23)** | |

**CHAPTER COVERED UPTO I.A-** Ch. 1,2,3,4 of Section A & Ch. 1,2 of Section B