Roll No												

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

MAKE UP EXAMINATION DECEMBER 2025

Semester: MK

Course Code: CIV 225

Course Name: Railway, Airport and Harbour Engineering

Program : B.Tech (Civil)

Date: 29-12- 2025

Time: 09:30am to 12:30pm

Max Marks: 100

Weightage:50%

Instructions:

(i) Read the all questions carefully and answer accordingly.

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries 5 marks. (3Q x 5M = 15M)

1. List down any 5 components of an airport. Briefly explain the same. **[5M]** **(C.O.No.3) [Knowledge]**
2. State the requirements of an ideal harbour**. [5M]** **(C.O.No.4) [Knowledge]**
3. Write a short note on the following:
   a. Fenders
   b. Moorings **[5M]** **(C.O.No.4) [Knowledge]**

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries 10 marks. (4Q x 10M = 40M)

4. Knowledge of airport engineering is needed to solve a problem of airport design work wrt planning of taxiway, runway. In this context present a detailed note on the following topics:
   a) Taxiway design
   b) Drawings to be prepared in airport survey **[10M]** **(C.O.No.3) [Comprehension]**

5. An airport has 4 gates which are available for all the aircrafts. It serves 3 classes of aircrafts having mix and average occupancy time during peak hour as follows:

Aircraft class	Mix (%)	Average occupancy time in min
1	35	50
2	25	45
3	20	35

If the maximum gate utilization factor is 60%, find the capacity of gates at this airport to process the aircraft. **[10M]** **(C.O.No.3) [Comprehension]**

6. The rails are the top most component track structure. The wheels of locomotive run on rails and transmit various forces through them to the other components of track structure down below. Sketch the section of an ideal rail and explain each component. **[10M]**
(C.O.No.1) [Comprehension]

7. What is the term of this following definition "Longitudinal movement of the rail with respect to the sleepers". Explain different theories for development of the same with neat diagram.
[10M (C.O.No.1) [Comprehension]

Part C [Problem Solving Questions]

Answer all the Questions. Each question carries 15 marks. (3Q x 15M = 45M)

8. Harbor is partly enclosed area which provides safe and suitable accommodation for supplies, refueling, repair, loading and unloading cargo. The problem is to build a semi natural harbor. Explain different component parts of a harbor in detail with neat diagram. Also explain different types of breakwater in detail. **[15M] (C.O.No.4) [Comprehension]**

9. Calculate the actual length of runway from the following data:

- Airport elevation : RL 130m
- Airport reference temperature : 28°C
- Basic runway length : 600m
- Highest point along the length : 112.855m
- Lowest point along the length : 107.225m **[15M] (C.O.No.3) [Application]**

10. A BG branch line track (5^o curve) takes off at a turnout from a main line track of a 8° curvature. Due to the turnout, the maximum permissible speed on the branch line is 20 km/h. Calculate the negative superelevation to be provided on the branch line track and the maximum permissible speed on the main line track. **[15M] (C.O.No.2) [Application]**