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**PRESIDENCY UNIVERSITY
BENGALURU**

SET B

**SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2024**

Semester : Semester VII - 2020

Course Code : CIV2022

Course Name : Railway Engineering and Tunnelling

Program : B.Tech.

Date : 01 -JAN-2024

Time : 9:30AM - 12:30 PM

Max Marks : 100

Weightage : 50%

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Question paper consists of 3 parts.

(iii) Scientific and non-programmable calculator are permitted.

(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

4 X 5M = 20M

1. List out the disadvantages of rail transport.

(CO1) [Knowledge]

2. Explain Loops and sidings in railways.

(CO2) [Knowledge]

3. Write a note on Components and safety measures in Railway Platform

(CO3) [Knowledge]

4. List out the safety measures to follow during tunnel construction

(CO4) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

5 X 10M = 50M

5. "Subgrade is the naturally occurring soil prepared to receive ballast the prepared flat surface" which is the other technical terminology of this phrase? List out the function of the same. Explain any 2 reasons for failure of railway embankment.

(CO1) [Comprehension]

6. A. Define coning of wheels in railway engineering? Explain how it works on different railway alignment with a neat diagram. (5 Marks)
B. Define railway alignment. Explain the basic requirements of the same. (5 Marks)
(CO1) [Comprehension]
7. Due to passage of moving loads and friction between the rail and wheel, the rails will eventually wear out. Elaborately explain rail wear with the types, defects and also causes for rail failure.
(CO2) [Comprehension]
8. Geometric design of railway includes Gradients in the track, Curvature of the track and Alignment of the track. List out the objectives of railway gradients. Also explain any 3 types of railway gradients to solve their suitability issues with respect to terrain and speed requirements.
(CO2) [Comprehension]
9. Different types of railway components are used in track construction. Specially to join the rails and sleepers various members are utilized. List down all the types of fittings and fastenings, explain with neat diagram.
(CO3) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

2 X 15M = 30M

10. A. Explain in detail about different Classification of railway station. (10 Marks)
B. Define mucking in tunneling. Write a note on the same. (5 Marks)
(CO3) [Application]
11. A. Tunnel road lighting must provide comfort and safety and maximize the visual performance of users. Write a detailed note on tunnel lighting and ventilation. (10 Marks)
B. Write a note on Interlocking of points. (5 Marks)
(CO4) [Application]