BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BE
BRANCH: CEE

SEMESTER: VI
SESSION : SP/2020

SUBJECT : CE6003 TRANSPORTATION ENGINEERING-II

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

Q1 (a) What are two disadvantages of railways when compared to roadways? [2]
    (b) Compare railways and highways with respect to organization and control, right of way, and horse power with justifications. [3]

Q2 (a) What is CONCOR? Explain its function. [2]
    (b) Why is the importance of choosing a good alignment at the planning stage cannot be overstated, (Any two points). [3]

Q3 (a) There is not much change in cost if wider gauge is selected. Explain (2 points). [2]
    (b) What is a hogged rail? Explain two remedies for hogged rails. [3]

Q4 (a) What would be the expression for sleeper density if the rail length used in a track is 19m and there are 22 sleepers under one rail length? What would be the number of sleepers if track is laid with welded rails of 20 metre length? [2]
    (b) What is the function of a fish plate? Write any one requirement of a fishplate. What is a combination fish plate? [3]

Q5 (a) What is cant deficiency? Why it is limited? [2]
    (b) On a B.G. 3^0 curve, the equilibrium cant is provided for a speed of 80km.p.h. Calculate the value of equilibrium cant. Assuming a maximum cant deficiency, what would be the maximum permissible speed on the track? Max. cant deficiency 7.6cm. [3]

Q6 (a) What is a transition curve? Which type of curve is adopted for railways and write the formulae. [2]
    (b) Calculate the shift and offsets at every 15m of a transition curve. The transition curve of 90 m long is to be used to join the ends of a 4^0 circular curve within the straight and circular curve. [3]

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