

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

CLASS: MUP
BRANCH: Architecture & Planning

SEMESTER : 2nd
SESSION : SP/2023

SUBJECT: AR656 TRANSPORTATION PLANNING

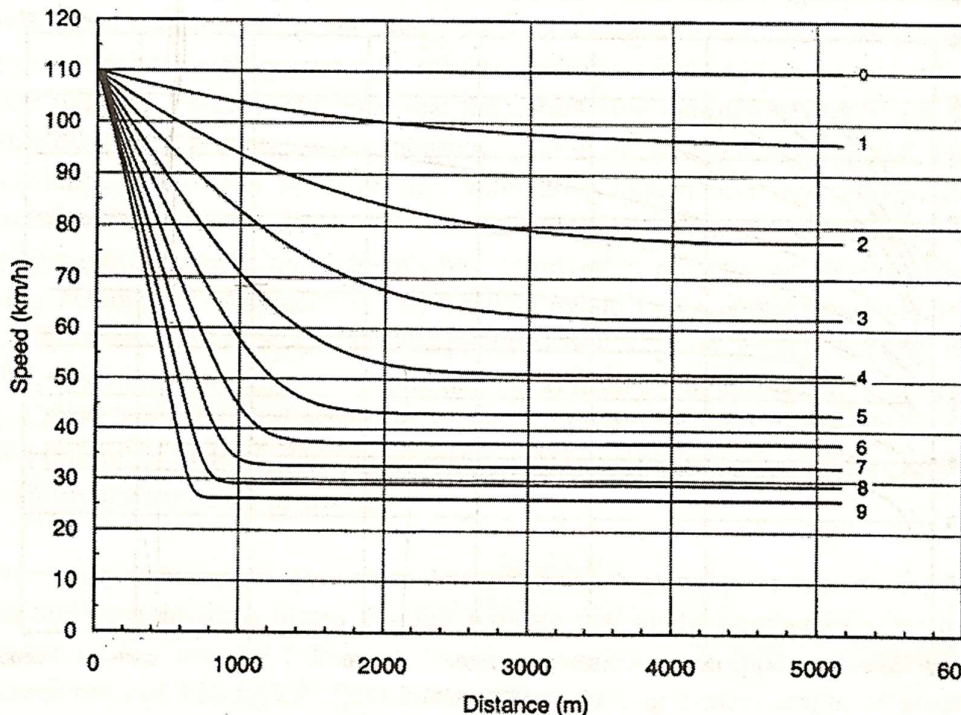
TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) What is a design vehicle and what are the parameters of a design vehicle that influences the design of road infrastructure? [3]
- Q.1(b) Define the three parameters of traffic flow. State the relationship between speed, flow, and density of traffic. [4]
- Q.1(c) What are the types of urban and rural roads in India? [3]
- Q.2(a) Draw a schematic cross section of a 30 meter wide ROW. Name all the parts clearly on the diagram [3]
- Q.2(b) What is extra widening? Clearly state and explain the benefits of providing extra widening [4]
- Q.2(c) What are the differences between economic and financial analysis? [3]
- Q.3(a) If a goods vehicle with a load: power ratio of 200 lb/hp enters a 2% slope at a speed of 100km/h and travels for 800 meters before it enters a slope of 3% that lasts for 400 meters and merges with a plain stretch of carriageway. What will be the speed of the vehicle when it reaches the plain stretch of the highway? (refer the following graph to solve this) [5]



- Q.3(b) Speed of 30 cars were observed, 9 cars were noted to travel at 30 km/h, 12 cars at 40 km/h, 4 cars at 50 km/h, and 5 cars at 45 km/h. Assuming that each car was travelling at a constant speed, determine the time mean speed. [5]

- Q.4(a) What is transportation planning? Explain the major challenges associated with it. [5]
- Q.4(b) What is a cordon line? How is it different than zone? State the considerations while identifying cordon line for a study [5]
- Q.5(a) What is Road Safety Audit? Explain the stages at which RSA can be performed. [5]
- Q.5(b) What is TOD? Explain the benefits and challenges associated with TOD. [5]

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