

3. 2. 09

Ex/BESUS/CE-505/09

B.E. (CE) Part-III 5th Semester Examination, 2009

Transportation Engineering-I
(CE-505)

Time : 3 hours

Full Marks : 70

Use separate answerscript for each half.

FIRST HALF

(Answer Q.No.1 and any TWO from the rest.)

1. Write short notes on (any three) : [3×5]
 - a) Apron and Basin,
 - b) Wharf and Pier,
 - c) Enclosed dock and Floating dock,
 - d) Standing wave and Wave reflection,
 - e) Causes and Prediction of Tide.

2. State the assumption in Airy's Wave Theory. Give the expression for length of stationary waves in deep water. How does waves break due to shallowing of water? [2+5+3]

3. What is meant by port? Give a typical sketch for layout plan of a port. Discuss the different component of a port. [2+4+4]

4. State the condition for selection of rubble mound break water. What are the relative advantages and disadvantages of such break water? Discuss briefly with neat sketch the different parts of rubble mound break water. [2+3+5]

SECOND HALF

(Answer Q.No.5 and any TWO from the rest.)

5. Write short notes on any three : [3×5]
 - a) Wet Mix Macadam,
 - b) Vehicle Damage Factor (VDF),
 - c) Construction joint of a rigid pavement,
 - d) Overtaking sight distance and over taking zone,
 - e) Mechanical Extra widening on horizontal circular curve.

6. Name the different properties to be evaluated for stone aggregates to be used in road construction. Describe Los Angeles Abrasion test. State the abrasion values of stone aggregates for different constructions. What do you understand by 30/40 grade bitumen? [10]
7. a) What is super elevation? What are the factors on which the value of super elevation depends on?
b) Explain with neat sketch the methods of neutralisation of camber and introduction of super elevation from a normal camber section. [2+2+6]
8. a) What is meant by 'ESWL'? How the estimate of the traffic is to be carried out in the road pavement.
b) A subgrade soil sample was analysed and given the following data :
(i) Soil portion passing the No. 200 sieve = 60%,
(ii) Liquid Limit = 65%,
(iii) Plastic Limit = 45%.
Find out the Group Index of the soil.
Also design the pavement section by GI method for the anticipated traffic volume of over 300 commercial vehicles per day.
The design chart is given in Fig.-1. [2+3+5]

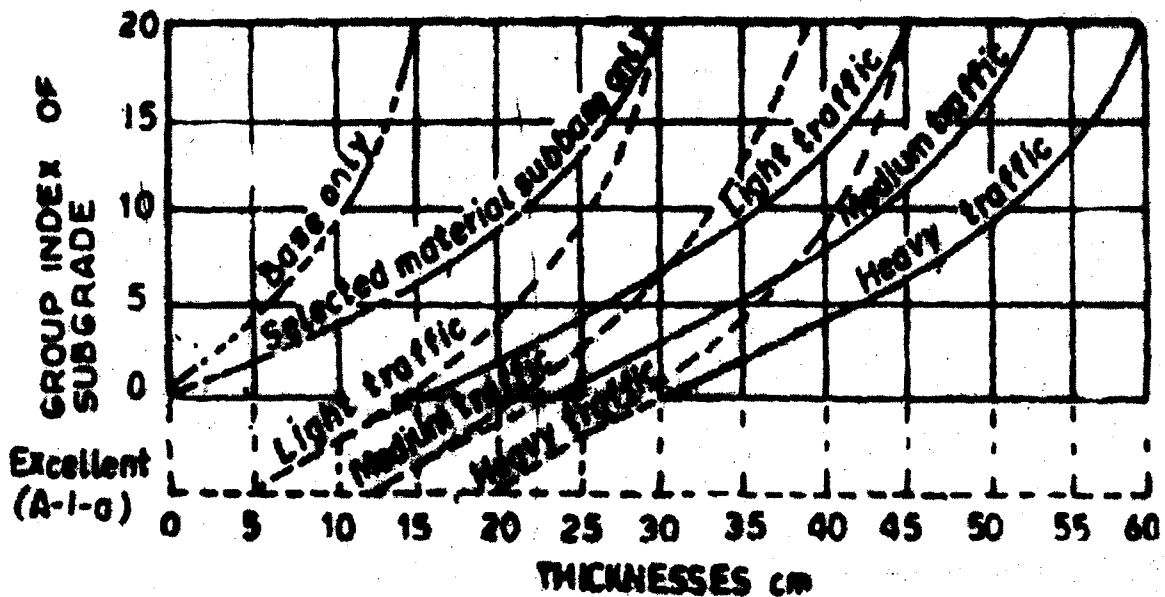


Fig.-1 Design Chart by Group Index Value

