SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

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May 2018
Reappear.
2011-14 Batch

B.Tech. || CIVIL || 5th Sem
TRANSPORTATION ENGINEERING -I
Subject Code: BTCE-504

Paper ID:

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**
- **Additional instructions, if any**

PART A (10x 2marks)

Q. 1. Short-Answer Questions:

(a) What is role of transportation in the economic and social activities of the country?
(b) What are the various surveys to be carried out before planning ahighwy system for a given area?
(c) What are the various factors on which the overtaking sight distance depends?
(d What are the obligatory point?
(e) What are the desirable properties of bituminous mixes?
(f) What are the various factors to be considered in pavement design?
(g) What are the various types of failures in cement concrete pavements?
(h) How would you describe the term highway financing.
(i) What are different vehicular characteristics which affect the road design?
(j) What is a traffic rotary?

PART B (5×8marks)

Q. 2. What are the various tests for judging the suitability of road stones? Discuss the objects of carrying out each of these tests and their advantages and limitations. CO1

OR

Explain CBR and the test procedure for laboratory and field tests. How are the results of the test obtained and interpreted?

Q. 3. Draw a sketch of flexible pavement cross section and show the component parts. Enumerate the functions and importance of each component of the pavement. CO2

OR

Explain the effect due to expansion and contraction of cement concrete slab and discuss the types of stress induced.

Q. 4. (a)Calculate the Safe Stopping Sight Distance for design speed of 80 km/hr for(Consider braking efficiency as 50%): CO3

(i) Two-way traffic on a two lane road

(ii) Two-way traffic on a single lane road.

(b) Calculate the Safe Overtaking Sight Distance for a design speed of 96km/hr. Assume all other data suitably

OR

The radius of a Horizontal Curve is 150 m. The design speed is 60 km/hr and the design coefficient of lateral friction is 0.15 (a) Calculate the Super elevation required if full lateral friction is assumed to developed (b) calculate the coefficient of friction needed if no super elevation is provided (c) calculate the equilibrium super elevation if the pressure on inner and outer wheels should be equal

Q. 5. Write short not on: CO4

a) Thirteenth highest hourly traffic volume

b) Level of service

OR

Explain how the speed and delay studies are carried out. What are the various uses of speed and delay studies?

Q. 6. What are the different types of overlays that may be considered for strengthening existing flexible pavements? Mention their relative adavtages. CO2

OR

Discuss how the problem of road construction in water logged areas may be solved.