

05/01/2023

Reg. No.

Question Paper Code

11563

**B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022**

Sixth Semester

**Civil Engineering**

**CE8604 - HIGHWAY ENGINEERING**

(Regulations 2017)

(CBR chart shall be provided)

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

- |  | <i>Marks,<br/>K-Level, CO</i> |
|--|-------------------------------|
| 1. How are roads classified in Nagpur plan?                    | 2,K2,CO1                      |
| 2. Write short notes on Motor Vehicle Act.                     | 2,K1,CO1                      |
| 3. Differentiate between Right of Way and Carriage way.        | 2,K2,CO2                      |
| 4. What is meant by widening of pavement on horizontal curves? | 2,K2,CO2                      |
| 5. What are the requirements of an Ideal Pavement?             | 2,K1,CO4                      |
| 6. Mention the types of joints in rigid pavements.             | 2,K1,CO4                      |
| 7. Define flakiness index and Elongation Index.                | 2,K1,CO5                      |
| 8. What is the significance of CBR test?                       | 2,K2,CO5                      |
| 9. What do you mean by the term Highway Project Formulation?   | 2,K2,CO6                      |
| 10. Write down the works under routine repairs.                | 2,K2,CO6                      |

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

11. a) Write a detailed note on the history of Highway development in India. 13,K2,CO1
- OR**
- b) Discuss in detail about the conventional and modern methods of engineering surveys to be carried out for highway locations or alignment. 13,K2,CO1
12. a) Explain the factors affecting the sight distance. 13,K2,CO2
- OR**
- b) Calculate the safe OSD for a design speed of 90 Km/h. Take reaction time of driver as 2.5 seconds and acceleration of overtaking vehicle as 2.5 km/h/sec. Draw OSD Zone. 13,K3,CO2

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

**11563**

13. a) Explain the components and their functions in flexible pavements. *13,K2,CO4*

**OR**

b) Explain the steps involved in the IRC method of design of flexible pavements. *13,K2,CO4*

14. a) Explain the application of Geo textiles and Geo membrane in Road Construction. *13,K2,CO5*

**OR**

b) Write in details the different types of test to be conducted to check the suitability of Aggregate Material in highway works. *13,K2,CO5*

15. a) Explain in details the pavement management system (PMS) with its effectiveness in pavement maintenance? *13,K2,CO6*

**OR**

b) Explain in detail about any four methods of strengthening of pavements. *13,K2,CO6*

**PART - C (1 × 15 = 15 Marks)**

16. a) A Valley curve is formed due to two gradients +2.5% and -1.75%. If the design speed of this highway is 80kmph. Determine the stopping sight distance and design the valley curve to fulfil both comfort and head light distance conditions. *15,K3,CO3*

**OR**

b) Describe briefly about gradient and its types with neat sketch. *15,K2,CO3*