**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, November 2022**

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|  | **3BT5156** | Roll No. | Total Printed Pages: 1 |
| **3BT5156** |  |
| B. Tech. III Year V- Semester (Main/Back) End Semester Examination, November 2022  **(CV)** | |
| **BCV05104 : Transportation Engineering** | | | |

# Time: **3** Hours. Total Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **1.--------------------------Nil--------------------** **2.------------------Nil-----------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** |  | What do you understand different mode of transportation? Explain in details. | **(12)** | Understand |
|  |  |  |  |  |
|  |  | **OR** |  |  |
| **Q.2** | **(a)** | Explain the development of highways in India from ancient times. What are different agencies in India for highway construction? | **(6)** | Apply |
|  |  |  |  |  |
|  | **(b)** | Explain various road patterns and road development plans. | **(6)** | Apply |
|  |  | **UNIT-II (CO2)** |  |  |
| **Q.3** | **(a)** | What are Bituminous materials? Explain in detail. | **(6)** | Understand |
|  |  |  |  |  |
|  | **(b)** | Explain all three test of soil in detail. | **(6)** | Understand |
|  |  | **OR** |  |  |
| **Q.4** | **(a)** | Explain any five tests which are performed on aggregates | **(6)** | Understand |
|  |  |  |  |  |
|  | **(b)** | Explain all tests which are performed to find out the quality of bitumen. | **(6)** | Understand |
|  |  | **UNIT-III (CO3)** |  |  |
| **Q.5** | **(a)** | Write down the design steps of super elevation. | **(6)** | Apply |
|  |  |  |  |  |
|  | **(b)** | The [gradient](https://civilnoteppt.com/6-types-of-classification-of-gradient-ruling-limiting-exceptional-minimum-average-and-floating-gradient/) on a highway is 1 in 15. The radius of curve is 160 m. After grade compensation, the grade to be provided should not be less than 4%. [What is grade compensation](https://civilnoteppt.com/grade-compensation-in-road-at-curves/)? | **(6)** | Evaluate |
|  |  | **OR** |  |  |
| **Q.6** |  | Calculate the length of transition curve considering the design speed 65kmph,radius of circular curve 220m ,width of pavement(including extra widening) 7.5m and allowable rate of introducing super elevation 1 in 150. | **(12)** | Evaluate |
|  |  |  |  |  |
|  |  | **UNIT-IV (CO4)** |  |  |
| **Q.7** |  | What are the design factors of rotary intersection? | **(12)** | Understand |
|  |  |  |  |  |
|  |  | **OR** |  |  |
| **Q.8** |  | Explain traffic signs in details with at least 10 proper sign of each. | **(12)** | Understand |
|  |  |  |  |  |
|  |  | **UNIT V (CO5)** |  |  |
| **Q.9** |  | Design a flexible pavement by GI method and CBR method. | **(12)** | Apply |
|  |  |  |  |  |
|  |  | **OR** |  |  |
| **Q.10** |  | Design a rigid pavement by Westergrad’s method and modified method | **(12)** | Apply |