Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 90335

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Sixth Semester

Civil Engineering

CE 8604 – HIGHWAY ENGINEERING

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define obligatory point.

2. Briefly explain Road Ecology.

3. Define Road margins.

4. Compare summit and valley curves.

5. List any four factors which affect the stability of the pavement.

6. Define critical load positions.

7. List the significance of CBR test.

8. Define elongation Index.

9. List the parameters that should be observed for evaluating a rigid Pavement.

10. Define the term "Highway Project Formulation".

PART B — (5 × 13 = 65 marks)

11. (a) Write in detail about the engineering surveys conducted for Highway alignment.

Or

(b) Write various Classifications of highways and its locations and functions.

12. (a) Explain the steps involved in the design of hill roads.

Or

(b) Explain the various types of horizontal curves with neat sketches.

13. (a) Explain in detail about embankments in pavement.

Or

(b) Explain the functions of the components of flexible pavements.

14. (a) Discuss the applications of geotextile and geo-membrane in road construction.

Or

(b) Explain the steps involved in the construction of cement roads.

15. (a) Explain different types of failures of rigid pavements. Suggest possible Repairs and Maintenance methods for each failure.

Or

(b) Explain the methods of strengthening damaged pavements.

PART C — (1 × 15 = 15 marks)

16. (a) The speed of overtaking and overtaken vehicles is 80 and 50 kmph respectively. On a two way traffic road, the acceleration of an overtaking vehicle is 0.99 m/sec². Assume any other necessary data.

(i) Calculate safe OSD

(ii) Mention the minimum length of overtaking zone

(iii) Draw the sketch of the overtaking zone with all details.

Or

(b) Develop in detail about various steps involved in a new highway project.

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