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Question Paper Code : 70360

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

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. State the significance of highway planning.
2. Draw a typical cross section of an expressway.
3. List the four factors controlling the highway alignment.
4. Give the significance of intermediate sight distance.
5. Define flexible pavements.
6. Give the design principles of rigid pavement.
7. Define elongation Index.
8. What are the requirements of highway drainage system?
9. Enlist the pavement distress in flexible pavements.
10. What is skid resistance?

PART B — (5 × 13 = 65 marks)

11. (a) Discuss in detail about the functions of urban transportation planning.

Or

- (b) Discuss in detail about the obligatory points controlling highway alignment.

12. (a) Explain the different types of gradients in vertical alignment.

Or

- (b) Calculate the extra widening required for two-lane pavement having a radius of 350 m if the longest wheelbase of the vehicle expected on the road is 6.5 m. Take the design speed as 85 kmph.

13. (a) Explain the factors governing the structural design of flexible pavements.

Or

- (b) Explain in detail the IRC recommended design procedure of rigid pavement.

14. (a) Explain any three test for bitumen mixes.

Or

- (b) Discuss in detail the various quality control measures adapted in highway practices.

15. (a) Discuss in detail the various pavement management systems.

Or

- (b) Explain briefly regarding the strengthening of pavement.

PART C — (1 × 15 = 15 marks)

16. (a) Elaborate on the types of surveys involved in highway transportation planning.

Or

- (b) Enumerate the various points to be considered for a highway project formulation.