

Mid-West University  
**Examinations Management Office**  
End-Semester Examinations -2080

Bachelor level/ B.E. Civil /6<sup>th</sup> Semester  
Time: 3 hours

Full Marks: 50  
Pass Marks: 25

**Subject: Low Volume Road Engineering (CE496)**

- *Attempt all the questions*
  - *Figures in the margin indicate full marks.*
  - *Assume suitable values, with a stipulation, if necessary.*
  - *Candidates are required to answer the questions in their own words as far as possible.*
1. What is the role of GIS in road planning? Write down the best management practices for road design and construction related to low volume road. [2+3]
  2. What do you mean by Geotextile material? Write down the applications of Geotextile material in the drainage system of Highway. [1+4]
  3. Where do you place Sub-surface drainage? Draw a neat sketch of sub-surface drainage section showing all components. How do you improve wetland and meadow crossing area during Highway development? Describe appropriate measures. [1+1+2]
  4. The basin area of a river is 800 km square. Compute flood of 50 years return period using WECS method. Given: S= Standardized normal variate from a particular return period = 0, 0.842, 1.282, 1.645, 2.054, 2.326, and 2.576 for T = 2, 5, 10, 20, 50, 100, and 200 years, respectively. [5]
  5. Describe the concept and site selection of timber bridge design. Define Bridge scour and write some necessary methods for bridge scour protection. [2+3]
  6. Draw different types of retaining structure with their tentative dimensions and define the conditions of failures. [4]
  7. Write down some field applications of soil mechanics in the field of pavement construction. Describe Gulley Stabilization with recommended practices. [2+3]
  8. Write down the necessary steps in conducting Environmental assessment of any development project and associated activities within these steps. Describe in detail the different types of bio-engineering techniques. [2+3]
  9. Explain the process of road maintenance and types of road maintenance. [1+2]
  10. What are the issues related to road maintenance especially in context of Karnali province and write some recommendations to province government for better road service? Describe. [4]
  11. How do you describe social benefits of low volume road? Describe the different types of risks and opportunities associated with road construction projects. [2+3]

**The End**