

05 N TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2075 Bhadra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BCE	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Rural Road Engineering (*Elective II*) (CE76514)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Describe the characteristics of Green Roads? Explain why the concept of Green Road was introduced in Nepal. [4+4]
2. Explain the key actors of rural road planning? Write down the procedure of selecting District Road Core Network in preparing District Transport Master Plan. [4+4]
3. Given the profile below, determine the length of vertical curve needed to make the highest point on the vertical curve come out exactly over the center line of the cross road at station 150+70. [8]
4. What are the provisions made in Nepal Rural Road Standard 2012 for the coordination of horizontal and vertical alignment and for road safety? [4+4]
5. Explain the supports needed for effective implementation of Green Road projects. [8]
6. Describe the trainings needed for different stakeholders? How materials can be transported in Green Road projects? [4+4]
7. What are the measures that can be taken for effective water management in Green Roads? Also explain mass balancing. [4+4]
8. What are the objectives of phase construction? Describe the stages of Green Road construction. [4+4]
9. Explain how rational evaluation of Green Road projects can be undertaken? What is public auditing? [6+2]
10. Explain the mitigation measures on maintenance. What is sustainable maintenance? [6+2]

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2073 Magh

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	80
Programme	BCE	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Rural Road Engineering (*Elective II*) (CE76514)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
 - ✓ Attempt All questions.
 - ✓ All questions carry equal marks.
 - ✓ Assume suitable data if necessary.
1. Define green road approach. What are the characteristics and objectives of green road?
 2. Why District Transport planning is important for rural road development in the context of Nepal? Write down the District Transport Master Plan (DTMP) planning process based on DoLIDAR approach, and best practice report.
 3. Explain the Design capacity and Design speed in geometric design of the road. What are the suggested design speeds in Nepal for rural road conditions? What is the distinction between ruling and minimum design speeds and where they are adopted?
 4. What are the types of support required for green road? Describe technical support for green road construction.
 5. Explain briefly with neat sketches of phased construction approach. What is meant by stage construction and explain the various stages of road construction?
 6. Enlist the road elements, which are dealt in the geometric design of road. What are the basic recommended width of carriageway, shoulder, roadway width in District Road (Core network) in Hill and Terai? Also show recommended value with neat sketches in single lane road with drain in Hill area.
 7. Write down the main factor considered while selecting technically optimum road alignment in rural road. Explain briefly how locally available natural resources are re-utilized in rural road construction in Nepal.
 8. Water management is the primary means of environmental conservation in rural road construction. Explain the measures taken for water management in rural roads.
 9. What are the major influencing factors for the road construction cost in rural road? Explain briefly the quantifiable benefit of green road project.
 10. What is road maintenance? What are the main objectives of rural road maintenance? Write down the main policies which can contribute the minimization of road maintenance requirement in rural road.

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Year / Part	IV / II	Time	3 hrs.

Subject: - Rural Road Engineering (*Elective II*) (CE76514)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
 - ✓ Attempt **All** questions.
 - ✓ **All** questions carry equal marks.
 - ✓ Assume suitable data if necessary.
1. Mention briefly the basic principle of "Green Road". What are the major challenges for development of rural road network in Nepal?
 2. What are the main objectives of district transport planning? Explain the key actors mainly involved in planning and implementing process of rural road in Nepal?
 3. Briefly classify the roads based on location and function as per Nepal Rural Road Standard. Define carriageway width, shoulder width and roadway width with neat sketch showing in district road of single lane with side drain in hill area and village area.
 4. State the function of technical support, management support and social mobilization support in the rural road implementation. Which approach of performance based work assignment do you recommend in rural road implementation and why?
 5. How is the cost of Green Roads analyzed? Explain benefit cost analysis and its significance. What are the environmental and social viability criteria used for economic justification of Green Road Projects?
 6. Explain briefly with neat sketches of phased construction approach. What is meant by stage construction? Explain the various stages of road construction.
 7. Explain the factors influencing the geometric design of rural road. Explain how design speed affects the design elements of rural road.
 8. How do you define road alignment? What are the clues for selecting a technically optimum alignment?
 9. Define the terms "Rehabilitation" and "Upgrading". How maintenance of rural road's should be minimized in the context of Nepal?
 10. Green road approach is more concern for environmental conservation than conventional road construction approach, how? Explain briefly.
