

SEE 2080 (2024)
HIGHWAY ENGINEERING

समय : २ घण्टा

पूर्णाङ्क : ५०

दिइएका निर्देशनका आधारमा आफ्नै शैलीमा सिर्जनात्मक उत्तर दिनुहोस् :

समूह 'क' (Group 'A')

तलका प्रश्नहरूको ठिक विकल्प छान्ने उत्तरपुस्तिकामा लेख्नुहोस् :

Choose the best alternative of the following questions and write in the answer sheet:

(9×1=9)

१. तलकामध्ये नेपालको परिवेशमा सबैभन्दा सहज यातायातको माध्यम के हो ?
Which of the following is the most efficient mode of transportation in the context of Nepal?
a) Ropeway b) Railway c) Roadway d) Airway
२. Highway Alignment को Route Location का लागि सबै गदा अपनाउने step मध्ये पहिलो step कुन हो ?
What is the first step in survey for route location of highway alignment?
a) Map study c) Reconnaissance Survey
b) Preliminary Survey d) Detailed Survey
३. एउटा Horizontal Curve जसको अर्धव्यास 150 मि. छ, गति 80 kmph छ, गाडीको पाङ्ग्राबिचको लम्बाई 6 मि. छ र बाटोको चौडाइ 7.5 मि. छ भने, त्यसको mechanical widening कति हुन्छ ?
What is the value of mechanical widening for a horizontal curve of radius 150 m, design speed 80 kmph with a length of wheel base of 6m and pavement width 7.5 m?
a) 0.15 b) 0.24 c) 0.35 d) 0.8
४. तलका मध्ये पाइप कल्भर्टमा राखिने पाइपको standard size कुन हुन्छ ?
Which of the following is standard size of pipe used in pipe culvert?
a) 600 b) 900 c) 1200 d) 700
५. Low Cost बाटो कसरी बनाइन्छ ?
How are low cost roads constructed?
a) Constructed with heavy equipment
b) Constructed with local materials
c) Constructed with cement concrete
d) Constructed with reinforcement
६. तलका मध्ये पहाडको वरिपरि बाटो लैजान सबैभन्दा economical उपाय के हुन सक्छ ?
The economical option during construction of road around a hill can be
a) On cut portion of hill c) Providing tunnel
b) Providing road around hill d) Look for alternatives

3. National Highway को लागि Right of way को चौडाई कति हुन्छ ?
What is the width of right of way for National highways?
a) 20 m b) 30 m c) 40 m d) 50 m
4. पहाडी बाटो सामान्यतया कताबाट लगिन्छ ?
Hill road is usually aligned...
a) Along stable side of hill c) Along unstable side of hill
b) On the basis of economy d) On the basis of population
5. Major bridge को लागि कुन foundation सबैभन्दा उपयुक्त हुन्छ ?
Which type of foundation is more suitable for a major bridge?
a) Pile foundation c) Pier Foundation
b) Well foundation d) Grillage foundation

समूह 'ख' (Group 'B')

सबै प्रश्नहरूको छोटो उत्तर लेख्नुहोस् :

Attempt all short answer questions:

(5×5=25)

90. एउटा योजनाबद्ध सहर निर्माणका लागि यसको सुन्दरता बढाउन कुन road pattern उपयुक्त हुन्छ ? चित्र बनाएर व्याख्या गर्नुहोस् ।

For a well-planned city, to increase its aesthetic appearance, which pattern of road would be useful? Briefly explain with neat sketch.

91. Highway alignment छान्दा असर गर्ने तत्त्वहरूको व्याख्या गर्नुहोस् ।
Explain the factors controlling selection of highway alignment.

92. एउटा design speed 50kmph भएको बाटोको लागि stopping sight distance निकाल्नुहोस् ।

(क) बाटो two – way two lane छ । (ख) बाटो two – way single lane छ ।

co-efficient of friction लाई 0.37 र ड्राइभरको reaction time लाई 2.5 सेकेन्ड मान्नुहोस् ।

Calculate the stopping sight distance for a highway with a design speed 50 Kmph, assuming co-efficient of friction (f) as 0.37 and total reaction time of driver 2.5 seconds . For a two way two lane road and a two way single lane road.

93. Sub grade soil भनेको के हो ? बाटो बनाउन प्रयोग गरिने Sub grade soil का requirements के के हुन् ?

Define sub grade soil. What are the requirements of sub grade soil used in road construction?

94. फिल्डमा surface drainage कसरी बनाइन्छ ?

How do you design surface drainage for a highway on a field?

समूह 'ग' (Group 'C')

सबै प्रश्नहरूको लामो उत्तर लेख्नुहोस् :

Attempt all long answer questions:

(2x8=16)

१५. (क) Flexible र Rigid pavement को बिचमा फरक छुट्याउनुहोस् ।

Differentiate between flexible and rigid pavement. (4)

(ख) नेपालको विकट ठाउँमा बाटो बनाउँदा labor intensive र machine intensive मध्ये कुन विधि बढी economical हुन्छ होला ? आफ्नो विचार व्यक्त गर्नुहोस् ।

A road is to be constructed in rural area of Nepal. Which of the method among labor intensive and machine intensive would prove more economical? Express your opinion. (4)

१६. (क) Water Bound Macadam बाटो कसरी बनाउनु हुन्छ ?

How do you construct water bound macadam road? (4)

(ख) पहाडी बाटोमा प्रयोग हुने कुनै दुई special structure को बारेमा व्याख्या छोटकरीमा गर्नुहोस् ।

What are the special structures used in hilly road? Explain any two of them. (4)

