Seat No.

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MAR_APR 2026 SUMMER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Transportation Engineering - I

Sub. Code: 83735/84015

Day and Date: Monday ,18-05-2026 **Total Marks: 70**

Time: 10:30 AM To 01:00 PM

Instructions: **1. Draw neat labelled diagrams wherever necessary**
2. Figures to the right indicate full marks

Special Inst.: **Q.4 AND Q.8 are compulsory.**
Attempt any two question from Q.1,2,3 AND any two from Q.5,6,7.

Q1) Attempt any two questions. **[10]**

a. Explain the role of I.R.C. in Highway Engineering **[5]**

b. Explain the 'Scope of Highway Engineering'. **[5]**

c. Draw cross-section of a road and explain (i) Shoulders (ii) Camber **[5]**

Q2) Attempt any two questions. **[10]**

a. Define 'Gradient'. State the factors affecting the gradient. Explain the types of gradient recommended by IRC. **[5]**

b. Explain the necessity of Superelevation on the horizontal curves. Calculate the superelevation required on a road curve of radius 280 m for a permissible speed of 75 kmph. The coefficient of friction is 0.12. **[5]**

c. Write a note on use of transition curve in highway alignment. **[5]**

Q3) Attempt any two questions **[10]**

a. Differentiate between Flexible Pavements and Rigid Pavements with sketches. **[5]**

b. Enlist the tests to be carried out on aggregates. Explain any ONE test in detail. **[5]**

c. Explain Intersection Sight distance **[5]**

Q4) Attempt all questions. **[15]**

a. Explain rigid and flexible pavement failures in detail. **[5]**

b. Write a note on reaction time of driver. **[5]**

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c. Explain various desirable properties of stone aggregate used in Road construction **[5]**

Q5) Attempt any two questions. **[10]**

a. Explain assessment and need for pavement maintenance. **[5]**

b. Enlist Methods of Designing Bituminous Mixes and explain Marshall Method. **[5]**

c. Explain construction steps of rigid pavement with neat sketch. **[5]**

Q6) Attempt any two questions. **[10]**

a. Explain Road User and Vehicular characteristics. **[5]**

b. Explain the use of geo-textiles and geo-grid in highway construction. **[5]**

c. Explain Shield method of Tunneling in soft grounds. **[5]**

Q7) Attempt any two questions. **[10]**

a. Explain 'shield method' of tunneling in soft ground. **[5]**

b. Explain: Drainage in tunnels. **[5]**

c. Explain Pavement management system. **[5]**

Q8) Attempt all questions. **[15]**

a. Explain 'O & D' study in traffic Engineering. **[5]**

b. Explain Parking studies in detail. **[5]**

c. Explain sequence of tunneling operations in hard rock. **[5]**

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End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (84015) Transportation Engineering - I Part 4 SEM 7

2] (1154) B.Tech. CBCS (83735) Transportation Engineering - I Part 4 SEM 7