Sub Code: NCE502

Paper Id: 100502 Roll No: | | | | | | | | | | | | | |

BTECH
(SEM V) THEORY EXAMINATION 2019-20
TRANSPORTATION ENGINEERING-1

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a.	Explain different modes of transportation system
b.	Write down the various factors controlling alignment.
c.	What are the functions of shoulder?
d.	What is PIEV theory?
e.	Define traffic capacity.
f.	Differentiate between travel speed and running speed.
g.	What are the desirable properties of soil as a highway material?
h.	List the factors affecting design of flexible pavements .
i.	Explain ESWL.
j.	What do you understand by Prime coat and Tack coat?

SECTION B

2. Attempt any *three* of the following: 10x3=30

a.	Determine the length of different categories of roads in a state in India by the year 2001, using the third road development formula and the following data: Total area of the state = 80,000 km Total no. of towns as per 981 census = 86 Overall road density aimed at = 82km per 100 sq km area
b.	What is superelevation? Degn the superelevation required at a horizontal curve of radius 300m for MDR in mountainous region.
c.	Write down the various advantages and disadvantages of traffic signals.
d.	Explain the various tests for judging the suitability of road stones for pavement construction.
e.	Mention the specifications of materials and construction steps for water bound macadam.

SECTION C

3. Attempt any *one* part of the following: 10x1=10

a.	What are the significant recommendations of Jayakar Committee Report?
b.	Compare the construction methods of Telford and Macadam; bring out the points of differences.

4. Attempt any *one* part of the following: 10x1=10

a.	Calculate the length of transition curve for a state highway passing through plain terrain on a horizontal curve of radius 400m.
b.	A state highway passing through a rolling terrain has a horizontal curve of radius equal to the ruling minimum radius. Design all the geometric features of this horizontal curve, assuming suitable data.

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5. Attempt any *one* part of the following: 10x1=10

a.	Explain the traffic volume study in detail.
b.	What is theoretical capacity? The design speed of traffic lane is 80kmph. Estimate its theoretical capacity by assuming the average length of the vehicle as 6.0m.

6. Attempt any *one* part of the following: 10x1=10

a.	Write short notes on (i) Emulsions (ii) Cutbacks (iii) Mastic asphalt
b.	What is the rigid pavement? What are the steps for design of CC pavements thickness as per IRC guidelines?

7. Attempt any *one* part of the following: 10x1=10

a.	List different methods of roads construction. Discuss their advantages and limitations.
b.	Write down the construction steps of Bituminous carpeting