Code No: 138DZ **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, September - 2020
PAVEMENT DESIGN
(Civil Engineering)

Time: 2 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
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1. List out various factors that affect the pavement design. And discuss how they influence pavement design. [15]

2.a) Differentiate between the following:
i) Preventive maintenance and breakdown maintenance,
ii) Impending skidding, sideway skidding and straight skidding.
b) When can a designer use a lane distribution factor? Write the lane distribution factors for different lanes. [7+8]

3.a) Write the assumptions in one layered elastic systems for the estimation of stresses in flexible pavements.
b) A homogeneous half space is subjected to two circular loads, each 254 mm in diameter and spaced at 508 mm on centres. The pressure on the circular area is 345 kPa. The half space has an elastic modulus of 69 MPa and a Poisson's ratio of 0.5. Determine the vertical stress, strain and deflection at point A, which is located 254 mm below the centre of one of the wheels. Use appropriate Charts. [7+8]

4.a) Why contraction and expansion joints are provided in CC roads? Explain.
b) What is dowel bar? Write how the spacing is decided for dowel bar. [7+8]

5.a) Why aggregates are tested in the pavement construction? Discuss the importance of CBR in the pavement design.
b) Explain about use of Geo Synthetics. [8+7]

6.a) Write short notes on specific gravity and water absorption test as aggregate.
b) What are the functions of prime coat, tack coat and seal coat in bituminous construction. [7+8]

7. Discuss the important aspects of design concepts in Asphalt Institute Method with hot mix asphalt. [15]

8.a) List out the types of overlays and discuss their functions.
b) Discuss the asphalt repair techniques. [8+7]

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