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**GIET UNIVERSITY, GUNUPUR – 765022**

M. Tech (Second Semester Examinations) – October' 2021

**MPSE2051 – INFRASTRUCTURE ENGINEERING AND TRANSPORTATION PLANNING**  
(Structural Engineering)

Time: 2 hrs

Maximum: 50 Marks

**(The figures in the right hand margin indicate marks)****PART – A**Q.1. Answer **ALL** questions

(2 x 10 = 20)

- What is meant by PCU? How its values are fixed?
- Discuss the objectives of transport engineering.
- State the various stages of transportation planning process.
- Explain the factors affecting Trip production and attraction.
- Define rotary intersection.
- What is 98<sup>th</sup> percentile speed? State its significance.
- What is meant by guard rails?
- Explain signal coordination and area traffic control
- Discuss about intersection and interchange in traffic design.
- What are the objectives of accident studies?

**PART – B****(6 x 5 = 30 Marks)**Answer **ANY FIVE** questions

Marks

- What are the different types of resistance that is offered by the vehicle when it is in motion? Explain. (6)
- A passenger car weighing 2 tonnes is required to accelerate at a rate of 3 m/sec<sup>2</sup> in the first year from a speed of 11 K.P.H. the Gradient is +1 percent and the road have a black topped surface. The frontal projection area of the car is 2.0m<sup>2</sup>. The car tyres have radius of 0.33 m. The rear axle gear ratio is 3.82 : 1 and the first gear ratio is 2.78 : 1. Calculate the engine horsepower needed and the speed of the engine. Make suitable assumptions. (6)
- Discuss in detail about the layout, design and planning standards of infrastructure development. (6)
- Summarize the financing process of infrastructure development project. (6)
- State the various methods of tunneling in soft ground. Explain Needle Beam Method with neat sketch. (6)
- What is need of mechanization in construction industry? Explain the merits and demerits of mechanization? (6)
- Write a short note on sustainable house and explain the principles of sustainable housing. (6)

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