DIFFERENTIAL GEOMETRY OF CURVES AND SURFACES (MTH 406)

QUIZ (28/01/2020)

Time: 50 minutes   Maximum Marks: 10

Attempt all questions. Use separate page for each answer.

Problem-1: Let γ be a unit speed curve in $\mathbb{R}^3$ with constant curvature and zero torsion. Show that γ is a parametrization of a part of circle. (4)

Problem-2: Compute κ, τ, T, N, and B at any point t of the following curve. (4)

$$\gamma(t) = (\ \frac{4}{5}\ cos(t), 1 - sin(t), -\frac{3}{5}\ cos(t)).$$

Problem-3: Show that the torsion function of a plane curve is zero function. (2)