## Differential Geometry 2023 - Minor 1

 $State\ true\ or\ false\ with\ justification$ 

- 1. The level set of a continuous function must be closed.
- 2. An integral curve of a vector field cannot cross itself.
- 3. The set of vectors tangent at a point p of a level set must be all of  $\mathbb{R}_p^{n+1}$ .