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| **Student’s Name** | **Student’s ID** | **Group Number** | **Lecturer’s Name** |
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| **Question Number** | **I** | **II** | **III** | **IV** | **Total** |
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| **Question I:** 1. **For the regular curve defined by compute the torsion .**
2. **Define Bertrand curves.**
3. **Prove that the distance between corresponding points of a pair of Bertrand curves is constant.**

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| **Question II:****Let be a simple surface defined by , and , be defined by . Then answer the following:**1. **Show that the curve lies on the simple surface .**
2. **Use part (a) to find a tangent vector to the simple surface at the point**

**Question III:** 1. **Let be a simple surface and be a coordinate transformation. Prove that is a simple surface.**
2. **Let defined by be a coordinate transformation, where , and**

**. Then answer the following:****(i) Find the Jacobian matrix for the function *f* at the point .** **(ii) Find,** **Question IV:****Let be defined . Then answer the following:**1. **Show that is a simple surface.**
2. **Find the equation of the tangent plane to the surface at the point .**

Good Luck ☺ |