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| ***Question I:* [4 Points]**  **Determine whether the following sequences converge or diverge**  **(i)** |
| **(ii)**  **(ii)**  ***Question II:*[6 Points]**  **A. Find the extrema and saddle points of**  **B. Use Lagrange multipliers to find the point on the sphere that is closest to the point**  ***Question III:*[5 Points]**   1. **Evaluate**  **where is the region bounded by the graphs of and**   **B. Use double integral to find the volume of the solid in the first octant bounded by the graphs of**  **, and** |
| ***Question IV:*[5 Points]**  **A. Use the polar coordinates to evaluate**  **B.Use triple integral to find the volume of the region bounded by the graphs of**  **and** |

Good Luck☺