**Birzeit University**

**Mechanical & Mechatronics Engineering Department**

**Heat Transfer ENME 431-2**

**Quiz 2**

**Instructor : Dr. Afif Akel Hasan 1st. semester 2020/2021**

**Closed book quiz, formula sheet is given**

**Question 1 50 points**

Given temperature distribution in a solid sphere with heat generation at steady state;

$ T\left(r\right)=121.25-5r^{2}$ Conductivity = 200W/m.K, Given outer radius 0.5 m

1. Find temperature at outer surface ro =0.5 m [4]
2. Determine the heat flux and heat rate at outer surface [15]
3. Determine the specific heat generation W /m3 in the sphere. [15]
4. What is the maximum sphere temperature, and where does it occur? [10]
5. Sketch temperature versus r, and flux versus r [6]

**Formula sheet**

 

 



 











 

 

  