Thermodynamics (MEL2020)
Indian Institute of Technology Jodhpur

Assignment-12 Date: 13th April 2022

Maximum points: 1 **Instructions:**

- *Answer all the questions*
- *Please write your solutions/explanations on a paper with your handwriting*
- *Scan all pages as a single pdf file and upload in google classroom before 15-04-22*
- *This will give you **1 point** towards your total evaluation,*
- ***Late submission lead to Zero Marks.***

1. Consider a thermal energy reservoir at 1500 K that can supply heat at a rate of 150,000 kJ/h. Determine the exergy of this supplied energy, assuming an environmental temperature of 25°C.

2. A piston-cylinder device initially contains 2 L of air at100 kPa and 25°C. Air is now compressed to a final state of 600 kPa and 150°C. The useful work input is 1.2 kJ. Assuming the surroundings are at 100 kPa and 25°C, determine *(a)* the exergy of the air at the initial and the final states, (*b*) the minimum work that must be supplied to accomplish this compression process, and (c) the second-law efficiency of this process