Thermodynamics (MEL2020)
Indian Institute of Technology Jodhpur

Quiz-4 Date: 16th February 2022

Maximum points: 2 **Instructions:**

- *Each question carries* **1 point**
- *No late Submission are allowed (leads to zero marks)*
- *Please write your answers in A4 type sheet and upload within 15 mins* ***(5 to 5:15 PM)***

1. 10 moles of ideal gas with $\gamma = 1.4$ is compressed reversibly and adiabatically from 100 kPa and 27 ^{o}C to 1 MPa. Then determine following:
(a) Final temperature of the gas (in K)?**(0.4 P)**
(b) Work done on the gas (in kJ) ? **(0. 4 P)**
(c) Change in internal energy (in kJ)? **(0.2 P)**

Please state the formulations/ equations clearly.

2. An Ideal gas is heated at constant volume until its temperature is doubled and then cooled at constant pressure to original temperature. Finally the gas is allowed to expand isothermally to the initial state.
(a) Draw p-v diagram with specifying various processes **(0.2 P)**
(b) Calculate the individual work done on each processes **(0.6 P)**
(c) Derive a relation to estimate network done **(0.2 P)**

Please state the formulations/ equations clearly.