Roll No. 2200101018

J.C.Bose University of Science and Technology, YMCA, Faridabad
B.Tech III Semester ME, Nov, 2023
Sessional Test 2
(PCC-ME-301/21)THERMODYNAMICS

MM: 30 **Time: 1:30 Hrs**

Note: (i)Attempt all the questions
(ii) Use of Steam table is allowed

Q1 Derive air standard thermal efficiency of Dual cycle. Also list all the assumptions made while deriving the air standard thermal efficiency of Dual cycle. **10 [CO4]**

Q2 (a) Two kg of water at 80^0 C is mixed adiabatically with 3 kg of water at 30 ^{0}C at a constant pressure of 1 atmosphere. Find the increase in the entropy of the total mass of water due to the mixing process. (c_p of water =4.187 kJ/kg K). **5 [CO2]**
(b) State and Prove Clausius inequality. **5 [CO2]**

Q3 (a) Explain the formation of steam at constant pressure. **5 [CO3]**
(b) 2 kg of steam at 8 bar, 0.8 dry is heated at constant pressure till the volume is doubled. Calculate (i) the final temperature and (ii) the heat added. **5[CO3]**

------All the Best-------