Test-1
Intermediate Mathematical Methods for Economics

Date: 10.10.2023
Maximum Marks: 12
Time: 45 minutes

Q1 Use the Lagrangean method to find the extreme values of $f(x, y) = x^2 + 2y^2$ on the circle $x^2 + y^2 = 1$. Check for global and local sufficiency. (3+3)

Q2 i) A firm produces two types TVs, A and B. The firm earns a profit of 700 from A and 1000 from B. Stage 1 of production requires 4 hours of labor on type A and 6 hours on type B. The total number of available hours is 4000. Stage 2 requires 1.5 hour of labor on A and 4.5 hours on B. The total labor they have is 3050 hours. At stage 3, 3 hours of labor are needed for both types and 3300 hours of labor are available. How many sets of each type should the firm produce to maximize its profit? Also, write down its dual problem. (4+2)

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