

**Indian Institute of Technology, Kharagpur**  
**Department of Industrial & Systems Engineering**

**Spring 2022-23**  
**IM29204: Operations Research Laboratory**  
**L-T-P : 0-0-3, Credits - 2**

**Lab Assignment – 2**

**Maximum Marks: 10**

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**Instructions :**

1. Attempt **all Questions**.
  2. All questions carry **equal** marks.
  3. Assume any missing data suitably and state all your assumptions clearly.
  4. You need to make this submission via **MS teams**.
  5. The usage of **mobile phones** and **internet** during the lab hours is **strictly prohibited** unless specially instructed.
  6. Write your name and roll number inside the file. Name your file as: Your Name\_Roll No. For example, if your name is Ravi and Roll No. is 10IM9999, then you should name your file as: **Ravi\_10IM9999**
  7. Submission Deadline – The file must be submitted during the lab hours. **Assignments submitted after due date and time will NOT be evaluated.**
  8. Do not submit multiple files for same assignment. In case of multiple files compress them in one “.zip” file and then submit.
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**Problem 1.** In preparation for the winter season, a clothing company is manufacturing parka and goose overcoats, insulated pants, and gloves. All products are manufactured in four different departments: cutting, insulating, sewing, and packaging. The company has received firm orders for its products. The contract stipulates a penalty for undelivered items. Devise an optimal production plan for the company based on data in the attached excel sheet, and solve the model using Cplex – OPL.

**Problem 2.** Acme manufacturing company has a contract to deliver home windows over the next 6 months. To take advantage of the fluctuations in manufacturing cost, Acme may elect to produce more than is needed in a given month and hold the excess units for delivery in later months. This, however, will incur storage costs at the rate of \$8 per window per month assessed on end-of-month inventory. Devise an optimal production schedule for the company based on data in the attached excel sheet, and solve the model using Cplex – OPL.

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