

PGDM / PGDM (IB), 2019-21
Data Envelopment Analysis
DM-441 / IB-441

Trimester – IV, End-Term Examination: September 2020

Time allowed: 2 hrs 30 min

Max Marks: 50

Instruction: Students are required to write models, process, results and interpretations. They are also advised to submit soft copy to the invigilators. **Answer one question from Q1 and Q2.**

Q3 is compulsory

Question 1

- a) Explain single input- single output ratio analysis. Find input and output target for inefficient firms from the following.

Firm	Capital employed in million	Value added in million
A	6.8	1.6
B	2.4	0.4
C	12.6	2.3
D	18.7	3.5

- b) What is output oriented CCR DEA model. Develop the output oriented CCR DEA model for the firm D from the above data set where number of employees for firms A, B,C,D are 1.8, 1.2, 1.6, and 3.8 in thousand respectively. Find the efficiency and benchmarking for each firm.

OR

Question 2

- a) Enumerate typical inputs and outputs for performance measurement of i) Airplanes
ii) Railways iii) Business Schools
- b) Discuss the relationship between CCR and BCC models. Explain cost efficiency with example.

Question 3

Discuss the process of input excesses and output shortfalls for a variable return to scale input oriented model. How you are determining reference set for an inefficient DMU. Find the efficiency, excess inputs (if any) any shortage of outputs (if any for the data set "software.xls."