(15 points)

Question IV:

An appliance manufacturer produces two models of microwave ovens: H and W. Both models require fabrication and assembly work; each H uses 4 hours of fabrication and 2 hours of assembly, and each W uses 2 hours of fabrication and 6 hours of assembly. There are 600 fabrication hours available this week and 480 hours of assembly. The profit per unit is $40 for H and $30 for W.

a) What is the mathematical Linear Programming formulation of the problem?

(5 points)

b) Solve the formulation Graphically using Corner point method?

(20 points)

Question III: Forecasting

3. Demand for cameras at Best Buy had the following demand (in thousands) history by quarters over a three-year period.

2018	Demand	**2019**	Demand	***2020***	Demand
1	14	1	18	*1*	16
2	27	2	34	*2*	47
3	78	3	73	*3*	86
4	54	4	64	*4*	49

Best Buy would like to forecast the demand for each quarter of year 2021. Total annual demand for 2021 is estimated to be 210. Given the last three years of historical data, what is the forecast of each quarter of year 2021?

(15 points)

Question IV:

Question I: Introduction

(a) Describe the interface of Operations Management with all areas of Business (e.g. Marketing, Finance, Information Systems, Engineering, Human Resources etc.) in a Paragraph.

(b) Describe five important milestones in the "Historical Evolution of Operations Management?

(20 points)

Question II: Forecasting

2. Hospitality Hotels forecasts monthly labor needs. Monthly labor figures for a 4-month period were as follows:

Month	Feb	Mar	Apr	May
Actual Values	41	40	38	42

Forecast June labor figures volume using each of the following techniques (Note: round off all values to two decimal places):

a) Naïve approach (the most appropriate one based on plotting the data)
b) A four-month moving average
c) A weighted moving average using 0.5, 0.2, 0.2 and 0.1
d) Exponential smoothing with a smoothing constant equal to 0.4
e) Linear Trend Equation
f) Compare the forecast accuracy for a MAD metric using Exponential smoothing, and Linear Trend. Which among the two is a better technique for this data?

(30 points)