



King Fahd University of Petroleum and Minerals

Systems Engineering Department

SE 305 – OPTIMIZATION

READ CAREFULLY

XYZ Inc., a manufacturer of automobiles radio, has received an order for **10,000** standard AM/FM radios and an order for **6,000** digital AM/FM radios with built in cassette deck. Because of other contractual commitments, XYZ may not be able to produce the total order on its own. That is, it may be necessary to subcontract the production of some radios. Another manufacturer, Positron Inc., has agreed to supply XYZ with standard radios at a cost of **\$65** per unit and digital radios at **\$115** per unit. XYZ must decide how many of each type of radio to produce in its own production facility and how many to buy from Positron. XYZ's production data is given in the table below:

Product	Assembly Hours	Inspection Hours	Packaging Hours	Unit Production Cost
Standard	<u>4.2</u>	<u>0.4</u>	<u>0.2</u>	<u>\$59</u>
Digital	<u>5.1</u>	<u>0.7</u>	<u>0.2</u>	<u>\$103</u>

XYZ estimates that its production hours available for assembly, inspection and packaging will be **40,000**, **6,000**, and **3,000** respectively. XYZ will be receiving **\$70.20** for each standard radio and **\$126.50** for each digital radio.

REQUIRED

a) Solve the question using two different LP solvers in GAMS.

b) Re-Solve the example of (Tutorial-Gams) pdf file.

Tutorial-Gams.pdf

Report:

- All formulation details.
- Screen Shots of the models and the results for each solver in GAMS.
- Your Comments and Conclusion.

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