King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
STAT-361 Operations Research I [1]
Major 2
April 19^{th}, 2016.

Problem 1 **(**35 **pts)**

Solve the following transportation problem.

Demand Nodes $\rightarrow$	1	2	3	4	
Supply Nodes $\downarrow$			Costs		Offer
1	6	4	5	4	800
2	5	3	5	5	1000
3	4	4	3	5	800
4	3	6	2	3	1000
Demand	1000	800	1000	800	3200

Table 1: Data for problem 1

[1]Dr. Slim Belhaiza (c)

Problem 2 **(**30 **pts)**

Solve the following assignment problem.

Tasks $\rightarrow$	1	2	3	4
Workers $\downarrow$	Costs			
1	2	5	5	5
2	5	6	4	4
3	4	4	5	4
4	7	4	4	5

Problem 3 **(**35 **pts)**

Consider the following project scheduling problem detailed in table 2.

Tasks	Condition	Duration (days)
a	–	4
b	–	4
c	after a	3
d	after b	4
e	after d	5
f	after c	3
g	after b and c	4
h	after d	3
i	after f and g	4
k	after h and i	5

Table 2: Data for problem 3

a) Use the CPM method to draw the graph representing the interdependence between the tasks of the project. (10 pts)
b) Find the shortest possible duration of the project. (10 pts)
c) Find the critical tasks and the critical tasks. (5 pts)