| Faculty of Engineering		1 st	Semester
Department: Civil Engineering Department		2 nd √	Academic Year 2018/2019
Course Name: Construction Project Management		Exam Type: Term	
		Date of Exam: 12-June-2019	
Grade: Third Year Civil		Time Allowed: 3 Hours	

NOTE: 1- Exam is (1) paper (2) pages, 2- Assume any missing information

Question 1:

1- اذكر متطلبات مالك المشروع؟ وماهي التزاماته؟ ووضح بمخطط مهام المكتب التنفيذي للمشروع ؟

2- ناقش بإيجاز أهمية مستندات المقاولة؟ وكذلك صنف أنواع العقود في المشاريع الهندسية؟

3- أذكر أنواع الدفعات التي يلتزم بها المالك تجاه المقاول؟ مع شرح لهذه الأنواع بإيجاز؟

4- عرف قوائم الكميات ؟ وفيما يفيد حساب الكميات للمشروع ؟

Question 2:

a. What is the difference between free float and total float?

b. Estimate the labor cost for the formwork of a continuous wall footing that has a quantity of 600 m². The activity is constructed by crew that has a daily output of 485 m²/day, and consists of: 3 carpenters at rate LE 40.60/hr & 1 building labor at rate LE 25.15/hr.

c. Convert the following arrow network into a node network
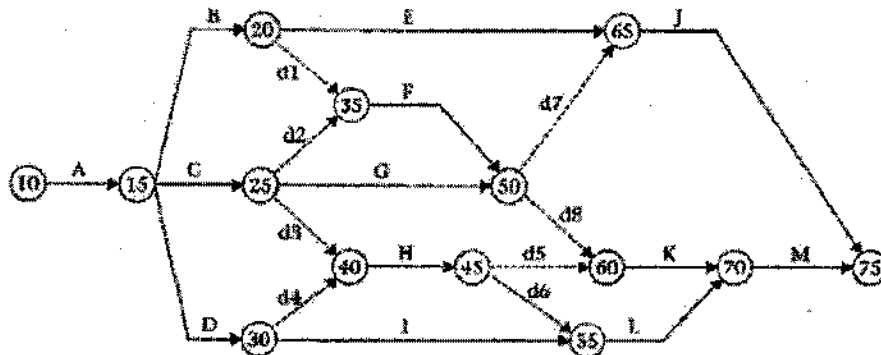
Question 3:

a. Discuss the differences between time-constrained and resource-constrained on time scheduling?

b. From the following project Bar Chart for early dates, determine whether the total amount of resources (labors) per day exceed the available limit of four (4) labors per day or not. If yes, how can you solve this problem without increasing the project total duration?

ID	Task Name	Start	Finish	Duration	Jun 2017														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	A	1/1/2017	1/3/2017	3d															
2	B	1/3/2017	1/5/2017	3d															
3	C	1/3/2017	1/6/2017	4d															
4	D	1/7/2017	1/11/2017	5d															
5	E	1/12/2017	1/14/2017	3d															

c. **The table below represents the durations and precedence relationships of the project activities. Draw the early histogram and S-curve, and highlight the**

minimum and maximum resources (money) per week. Determine the Project Total Cost.

Activity Code	Predecessors	Duration (weeks)	Lag	Money
A	-	2	0	5,000
B	A	6	0	6,000
C	A	10	0	30,000
D	A	4	4	2,000
E	B	7	0	12,000
F	B, C	5	3, 0	5,000
G	C, D	3	0	300
H	E, F	5	0	1,000
I	G, H	2	0, 1	4,000

Question 4:

a. Discuss the difference between: 1) Direct and Indirect cost, 2) Fixed and Variable Cost? Give examples.

b. The table below shows the activities of a construction project, their dependencies, estimated durations, cost and amount of steel reinforcement required for each activity per month. Develop the following items:

1. Draw activity on arrow with minimum number of dummy activities.
2. Draw activity on node.
3. Draw Precedence Diagram (Show: Early dates, late dates, total float and highlight critical path).
4. Draw bar chart (Show: Early dates, late dates, total float and highlight critical path).
5. Draw Steel Reinforcement histogram and S-Curve for early and late dates.
6. Draw: Cash out, Cash in and net cash flow for project. calculate the maximum amount of cash the contractor needs and when dose him/her requires this amount.

Activity	Predecessor	Duration (Month)	Cost (L.E)	Steel (ton) / Month	**Project Data:** All relations are finish to start lag 0.
A	-	2	1,600	2	Indirect cost = 1,500 L.E / Month
B	A	6	2,400	4	Profit = 10 %
C	A	3	3,300	3	Advanced Payment = 15 %
D	B	1	1,800	4	Retention = 10%, 5% will be paid
E	B	6	3,000	3	back with the last payment and the
F	C, D	3	2,700	4	other 5% will be paid back after
G	E, F	2	1,400	2	one year. Payment Process cycle is 1 months.

Best Regards;

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