

Model Answer "Special"



Cairo University
Faculty of Computers & Information
Course: Project Management
Course Code: DS321

Midterm Exam
Duration: 1 Hour
Instructor: Dr. Doaa Saleh
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This exam has 4 questions, for a total of 40 points which will be downscaled to 20.
Please attempt all questions after reading them very carefully.

40 = 20

Question 1:

1) Define Project Budget

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It is a plan that identifies the resources, goals and schedule that allows a firm to achieve those goals. 2

2) What is meant by Payback Period?

It's a period that determines how long it takes for a project to reach a break-even point. 2

3) List three problems with Cost Estimation

- ① Low initial estimates
- ② Lack of definition
- ③ unexpected technical difficulties
- ④ Specification changes
- ⑤ External factors

① 0.5
② 1.5
③ 2

Question 2: You have a construction project and plan to do 20% of the work each week. The project is scheduled to take five weeks and costs \$80,000 in total. After three weeks, 50% of the work has been completed, and \$50,000 has been spent. Is your project ahead of or behind schedule?

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$$BCWS = 60\% \rightarrow 48,000 \quad 1.5$$

$$BCWP = 50\% \rightarrow 40,000 \quad 1.5$$

$$ACWP = 50,000$$

$$SV = BCWP - BCWS = 40,000 - 48,000 = -8,000 \quad 1.5$$

The project is behind schedule. 1.5

Question 3: Construct a network activity diagram based on the following information:

Activity	Predecessor	Optimistic Time	Most Likely Time	Pessimistic Time	Expected Time	Variance
A	--	1	3	5	3	0.444
B	A	2	4	6	4	0.444
C	A	1	2	3	2	0.111
D	B	3	5	7	5	0.444
E	C	0.5	1	1.5	1	0.0277
F	C	1	2	3	2	0.111
G	D,E	2	4	6	4	0.444
H	F,G	1	3	5	3	0.444

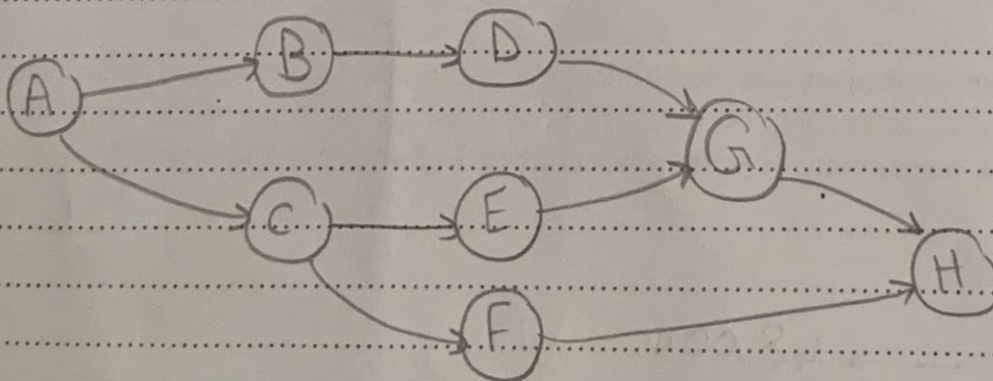
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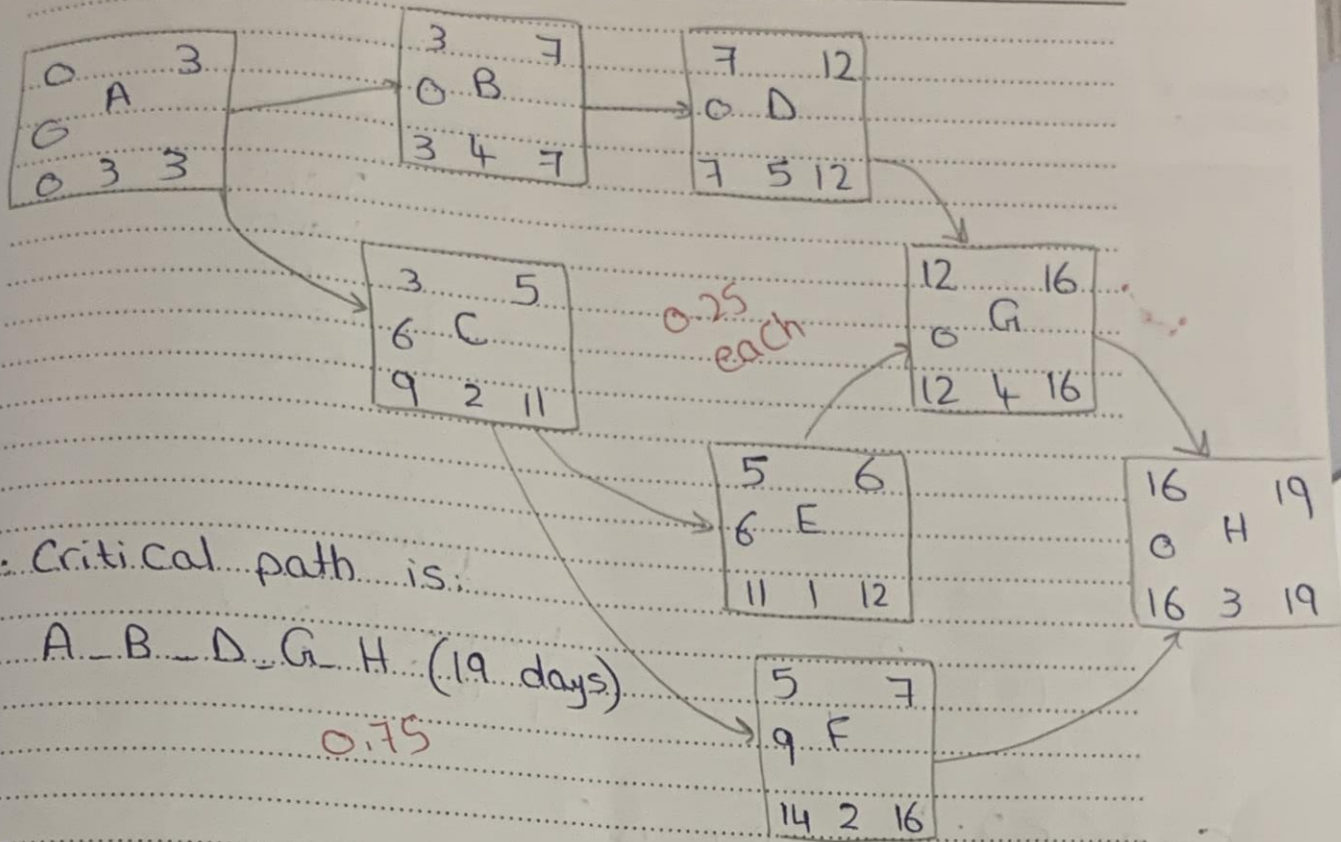
- Find the critical path. (calculate ES, EF, LS, LF, and slack)
- Find the probability that all critical activities will be completed in 20 days or less. (please be considered the following normal distribution table)

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Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
0.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
0.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
0.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
0.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
0.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
0.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7518	.7549
0.7	.7580	.7612	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
0.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
0.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621





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Project Variance = $0.444 + 0.444 + 0.444 + 0.444 + 0.444$
= 2.222

∴ project standard deviation = $\sqrt{2.222} = 1.49$

∴ $Z = \frac{\text{Due date} - \text{expected duration}}{\text{st. deviation}}$

= $\frac{20 - 19}{1.49} = 0.67$

∴ % = 0.7486 → 74.86% to finish in 20

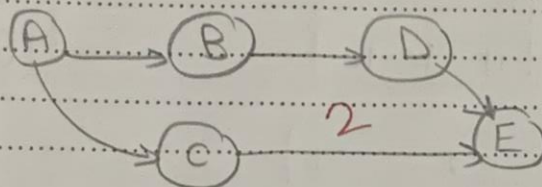
Good Luck

(3) days or less

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Question 4: The management of a company is interested in crashing of the following project by spending an additional amount not exceeding Rs. 2,000. Suggest how this can be accomplished.

Activity	Predecessor Activity	Normal		Crashed		Cost per day
		Duration	Cost	Duration	Cost	
A	---	7	15000	6	18000	3,000
B	A	12	11000	9	14000	1,000
C	A	22	18500	21	19000	500
D	B	11	8000	10	9000	1,000
E	C, D	6	4000	5	4500	500



paths:

A-B-D-E = 36 *

A-C-E = 35

Crash E 2, then B or D 2

For not exceeding the available budget
resulting in finishing the project in 34 days.

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