Model Answer

Regular

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

Midterm Exam
Duration: 1 Hour
Instructor: Dr. Doaa Saleh
Date: 28/11/2021

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.

$\frac{40}{40} = \frac{20}{20}$

Question 1: Define

/6

1) **Project**

- unique product or service
- Time limited
- project ends when the objectives are achieved or abandoned 2

2) **Recurring Vs. Nonrecurring**

* Recurring → Those that typically continue to operate over the project's life cycle 1
* Non recurring → might be those associated with charges applied once at the beginning or end of the project. 1

3) **Normal Vs. Expedited**

* Normal → Those incurred in the routine process of working to complete the project according to the original, planned schedule 1
* Expedited → un planned costs incurred when steps are taken to speed up the project's completion 1

Question 2: You have a project to be completed in 12 months and the budget of the project is 100,000 USD. 6 months have passed and 60,000 USD has been spent, but on a closer review, you find that only 40% of the work has been completed. **Find the project's Schedule Variance (SV) and determine if you are ahead of schedule or behind schedule.**

/6

Approximately planned to finish 8.33% each month

∴ After 6 months BCWS ≃ 50% → 50,000 $ 1.5

∴ ACWP = 60,000 $ ∴ BCWP = 0.4 * 100,000 = 40,000 $ 1.5

∴ SV = BCWP − BCWS = 40,000 − 50,000 = −10,000 1.5

∴ Behind schedule 1.5

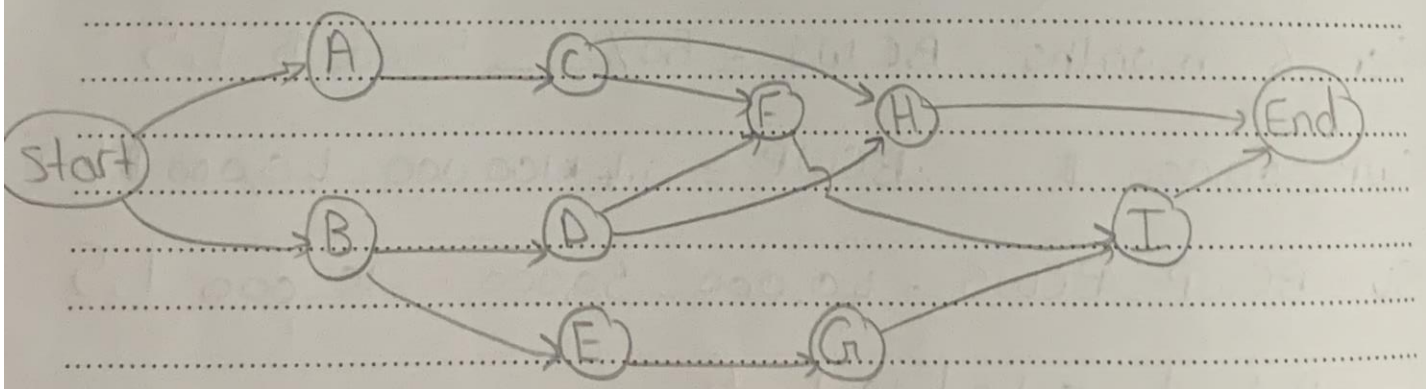
Qu

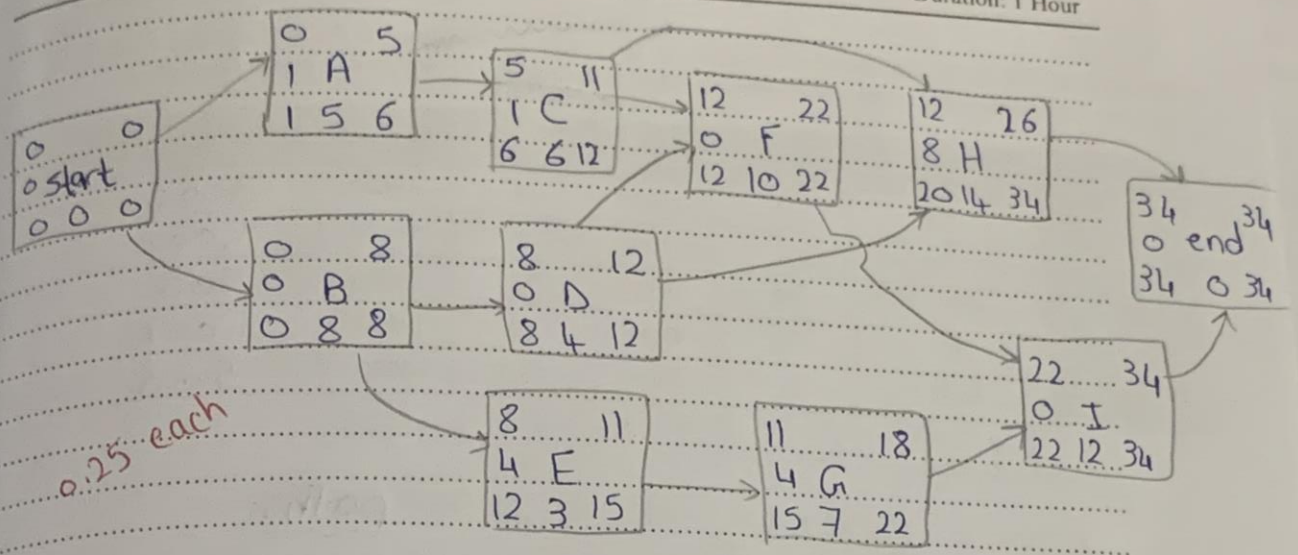
Question 3: Construct a network activity diagram based on the following information: /18

Activity	Predecessor	Optimistic Time	Most Likely Time	Pessimistic Time	Expected Time	Variance
A	--	4	5	6	5	0.111
B	--	6	8	10	8	0.444
C	A	6	6	6	6	0
D	B	3	4	5	4	0.111
E	B	2	3	4	3	0.111
F	C,D	8	10	12	10	0.444
G	E	6	7	8	7	0.111
H	C,D	12	13	20	14	1.777
I	F,G	10	12	14	12	0.444

1) Find the critical path. (calculate ES, EF, LS, LF, and slack) /12
2) Find the probability that all critical activities will be completed in 35 days or less. (please be considered the following normal distribution table) /6

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





0.25 each

Critical path: Start_B_D_F_I_end 0.75

Total Duration = 8 + 4 + 10 + 12 = 34 days

project variance = 0.444 + 0.111 + 0.444 + 0.444

≈ 1.443 1

project st. deviation ≈ 1.2 1

2] $Z = \frac{35 - 34}{1.2} \approx 0.83$ 1.5

∴ % = 0.7967 1.5

∴ Around 79.67% of completing the project in 35 days or less 1

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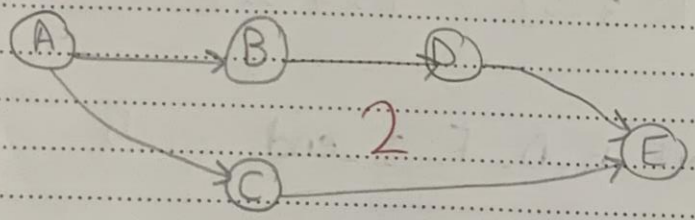
/10

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	3000
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 activity E, then D or B

For not exceeding the available budget

resulting in finishing the project in 34 days.