



STRATHMORE UNIVERSITY BUSINESS SCHOOL
MASTER OF MANAGEMENT IN AGRIBUSINESS
END OF SEMESTER EXAMINATION

MMA 8105: PROJECT PLANNING & MANAGEMENT IN AGRIBUSINESS

Date: Thursday, 18th May 2023

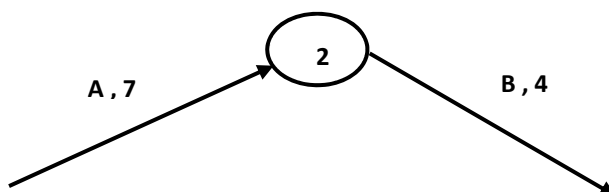
Time: 3 Hours

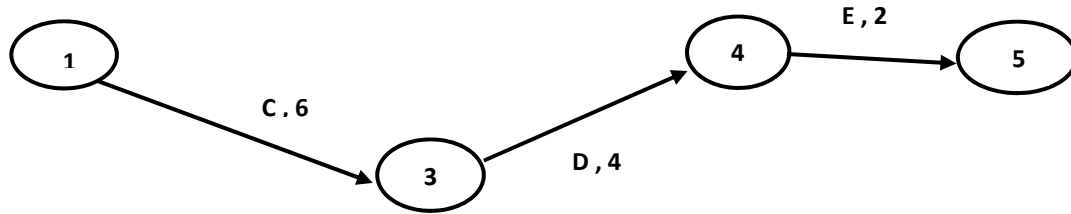
Instructions

1. This examination consists of FIVE questions.
2. Answer Question ONE and ANY OTHER THREE questions.
3. You are expected to work independently

Question 1 [compulsory] (25 Marks)

- a) A Project can be defined by its unique characteristics that distinguish it from routine day to day work. List and briefly explain any four project characteristics. **(8 Marks)**
- b) Briefly explain why it is important for the Project Manager to possess knowledge and skills on how to “crash project activities”. **(2 Marks)**
- c) Consider the following network for conducting a two-week (10 working days) computer training class:





i) From the network, what is the critical path (by activities, e.g. X – Y - Z) and the expected project completion time in days? **(3 Marks)**

ii) Table 1 gives the *Normal cost / Crash cost* details for the same network;

Table 1: Normal cost / Crash cost details for proposed computer training class

Activity	Minimum crash Time (days)	Crash cost (total)	Normal Time (days)	Normal Cost	Crash cost – Normal cost	Normal time – Minimum crash time	Crash cost per day
A	4	\$ 740	7	\$500			
B	2	400	4	200			
C	4	900	6	500			
D	1	860	4	200			
E	1	550	2	300			

Calculate for each activity the;

Crash cost – Normal cost

Normal time – Minimum crash time

Crash cost per day

Which activities should be crashed, and by how many days, so as to meet the expected project deadline of 10 days at minimum cost? **(4 Marks)**

iii) Draw the final *Activity on Arrow* network after crashing to arrive at the expected project completion of 10 days. What is the new critical path by activities, e.g. X – Y – Z? **(4 Marks)**

d) What managerial precautions should be taken into account while crashing a project? **(4 Marks)**

Question 2 (25 Marks)

A proposed Agribusiness financing project being considered by a venture firm in Kenya has the following activities and durations;

Activity	Optimistic Time	Most Probable	Pessimistic Time
1-2	3	6	15
1-6	2	5	14
2-3	6	12	30
2-4	2	5	8
3-5	5	11	17
4-5	3	6	15
6-7	3	8	31
5-8	1	4	7
7-8	3	17	37

- a) Draw an activity on Arrow (AOA) diagram, and please show the critical path. **(5 marks)**
- b) Calculate the probability of finishing the project in
i) Not more than 43 days **(5 marks)**
ii) Not less than 30 days **(5 marks)**
iii) Not more than 47 days **(5 marks)**
- c) How would you approach this specific problem if you had near critical paths of similar risk than the so called official critical path? Explain. **(5 marks)**

Note: Probabilities for the standard normal distribution are given as *Appendix 1* on the last page.

Question 3 (25 Marks)

Project stakeholders need to be effectively managed, and failure to recognize their potential power at the projects strategic level may lead to serious problems at the advanced stages of project planning and implementation.

- a) Briefly discuss who you understand “Project Stakeholders” to be, giving examples from any project you are familiar with. **(6 Marks)**
- b) Using a practical project example that you are familiar with, describe how you would develop a Project Stakeholder Management Strategy, indicating the main issues / questions you will address. **(10 Marks)**

- c) During a negotiation process with a contractor outsourced by your organization to carry out a major project, you suspect that the client is involved in “*front loading*”.

Briefly explain what you understand by the term “*front loading*” as applied here and in reference to the contractor, and how you would go about correcting this anomaly with the contractor during the negotiation process. **(6 Marks)**

- d) What would be the risk to your project if you were to allow the contractor to get away with the front loading as described in “c” above? **(3 Marks)**

Question 4 (25 Marks)

- a) The project front end is a critical stage to the eventual project success. Outline two critical activities (soft people issues) that should be addressed by the project manager during this phase of the project. **(6 Marks)**

- b) Many Project Managers only focus on what we call the official critical path (C.P.). We often find sub-critical (near critical) paths (say only one or two time periods shorter than the official critical path) that have greater risk potential (i.e. greater variances) than the official C.P. If you “stack” the variances of the individual activities on a path, you get a so called “normal” distribution.

Under what conditions does the stacking of betas create a normal distribution? **(5 Marks)**

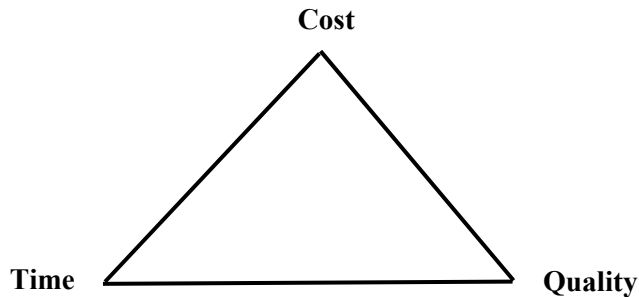
- c) The cost of a project is not solely due to the direct costs associated with individual activities in the project, normally, there are indirect expenses as well. Elaborate on what constitutes indirect expenses, and how such expenses change with the length of time required to complete the project. Illustrate with the help of a sketch diagram. **(5 Marks)**

- d) List and explain any 3 assumptions used in deriving the expected time, “*T_e*” for each activity under PERT. **(9 Marks)**

Question 5 (25 Marks)

- a) The project environment is stressful, and Project Managers often come under immense pressure to manage the project “Time” and “Cost” elements to the detriment of the overall project quality. Figure 1 depicts the so called “triple constraint” that is ever present in the

project environment. Explain how pressure on “Time” and “Cost” may compromise “Quality” in a project. **(5 Marks)**



- b) In most Project environments, project team members build a lot of contingency (fat) reserves on estimates of activity time, then waste it. Indicate and explain 2 ways in which Project time is wasted. **(6 Marks)**
- c) Illustrate with a sketch and explain how a project buffer may be used to protect the project time. **(5 Marks)**
- d) You have been assigned as the Project Manager tasked with planting trees on the plot of land behind the company’s new coffee factory. The plan is as follows: -

30 batches of 20 trees (600 trees) to be planted, 5 batches per day (100 trees). The budgeted cost per tree is Kshs. 290 (Kshs. 250 per baby tree plus Kshs. 40 for the slow release fertilizer).

The total budget provided is Kshs. 174,000. After the first day only 70 trees have been planted (the team hit a patch with stones that had to be removed before the trees could be planted). The total cost spent was Kshs 35,000 for the first day (the team had to rent a special machine to help remove the stones which cost Kshs 14,700 for the day). You are required to report to the steering committee on performance and determine how much time and cost remain. Required: Using the various Earned Value Management (EVM) formulas, determine the following for inclusion into the Project report;

- i) Cost Variance at the end of day one (amount in Ksh.) **(3 Marks)**
- ii) Schedule Variance (amount in Ksh.) **(3 Marks)**
- iii) Estimated cost at project completion (Ksh.) **(3 Marks)**

Appendix 1: Probabilities for the Standard Normal Distribution

Cumulative Probabilities for the Standard Normal Distribution										
FIRST DIGIT OF z	SECOND DIGIT OF z									
z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990