



**Strathmore**  
UNIVERSITY

**STRATHMORE UNIVERSITY BUSINESS SCHOOL**  
**MASTER OF SCIENCE IN DEVELOPMENT FINANCE**  
**END OF SEMESTER EXAMINATION**  
**MDF 8109: PROJECT FINANCE AND MANAGEMENT**

Date: Wednesday, 3<sup>rd</sup> August 2022

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)**

Blue Bonnet Company is a cable manufacturing company in Kenya. It uses the payback period in its project investment policy, and requires all investments to have a payback period (after taxes) of not more than 6 years. An investment of \$100,000 is to be spent on modifications / improvements to its manufacturing line to increase productivity.

Of the \$100,000 total investment, \$65,000 corresponds to equipment only depreciable by the straight line method, with a salvage value of \$5000 after 6 years. The remaining \$35,000 is depreciable by the double declining balance method.

After the boost in capacity, the benefits (Revenue) per year will amount to \$32,000 each year for the next five years. The tax rate for the company is 48%.

- a) Using a table format, calculate the total depreciation for each year (Y1 – Y6) i.e. depreciation for the \$65,000 investment + depreciation for the \$35,000 investment. **(8 marks)**
- b) On a separate table, generate the operating cash inflows for each year (Y1 – Y6) for the new investment. **(10 marks)**
- c) If this cable facility has an incremental tax rate of 48%, what is the after tax payback period (rounded to 1 decimal point) for this investment? **(5 marks)**
- d) Should the proposed modifications /investment be accepted by Blue Bonnet Company? Explain. **(2 marks)**

**Note**

The formula for the double declining balance is given as;

$$m \times (1/n) \times NBV$$

Whereby '*m*' is the multiple, '*n*' is the depreciable life of the asset, and *NBV* is the asset's net book value at the start of the year.

**Question 2 (25 Marks)**

- a) List and explain in each case, three benefits an organization /firm can derive from using contractors to undertake some work for it, rather than using its own employees? **(6 marks)**
- b) In a project that you are undertaking, it has become necessary to issue a variation notice to the contractor in the course of execution of the agreed works. Explain 2 precautions you would undertake to ensure the variation instructions you issue are well understood by the contractor? **(4marks)**
- c) Explain and elaborate 2 ways you may employ to try and shorten project duration **(5marks)**

Facing the dearth of infrastructure funding, an increasing number of countries in Africa are turning to Public-Private Partnerships (PPPs) in order to tap private capital. Although PPPs cannot fully solve this problem, they can provide significant financing where viable projects are carved out. Yet PPPs in Sub-Saharan Africa remain a very small market, with projects concentrated in only a few countries namely, South Africa, Nigeria, Kenya, and Uganda.

- d) List and explain 3 critical factors needed for the success of PPPs. **(6 marks)**
- e) Indicate 4 benefits of PPPs in Kenya, elaborating in each case why this is a significant benefit attributable to the PPP form of procurement. **(4 marks)**

### Question 3 (25 Marks)

Irvin enterprises is considering the purchase of a new equipment to replace the current equipment. The new equipment costs \$75,000 and requires \$5000 in installation costs. It will be depreciated under straight line method using a five year recovery period. The old piece of equipment was purchased 4 years ago for an installed cost of \$50,000, and it was being depreciated using the straight line method under a 5 year recovery period. The old equipment can be sold today for \$55,000 net of any removal or clean up costs. As a result of the proposed replacement, the firm's investment in net working capital is expected to increase by \$15,000. The firm pays taxes at a rate of 40%.

- a) Calculate the book value of the old piece of equipment. **(4 marks)**
- b) Determine the taxes, if any, attributable to the sale of the old equipment. **(4 marks)**
- c) Find the initial investment associated with the proposed equipment replacement. **(5 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.

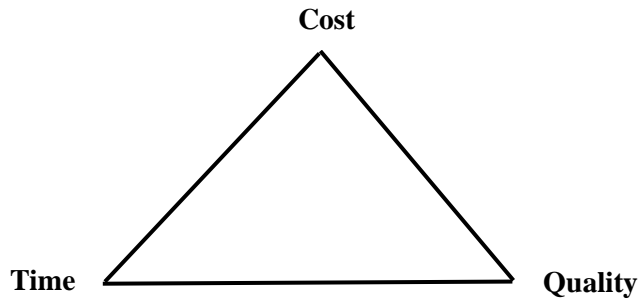
- d) Briefly discuss who you understand "Project Stakeholders" to be, giving examples from any project you are familiar with. **(6 marks)**
- e) Using a practical project example that you are familiar with, describe how you would develop a Project Stakeholder Management Strategy, indicating the main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

### Question 4 (25 Marks)

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 one) that may 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.

- a) List and explain 3 assumptions used (normally) in deriving the expected time, "*Te*" for each activity under PERT. **(9 marks)**
- b) 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)**



- c) 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)**
- d) Illustrate with a sketch, and explain how a project buffer may be used to protect the project time. **(5 marks)**

**Question 5 (25 Marks)**

- a) A project can be defined by its unique characteristics that distinguish it from routine day to day work. Briefly explain any two project characteristics **(4Marks)**
- b) Briefly explain why it is important for the Project Manager to possess knowledge and skills on how to “crash project activities”. **(4 Marks)**
- c) Consider the following information regarding a project concerning an initial public offering (IPO).

Activity	te (weeks)	Preceding activities
a	3	None
b	1	None
c	3	a
d	4	a
e	4	b
f	5	b
g	2	c, e
h	3	f

- i) Draw the AON / CPM network **(3 Marks)**
- ii) When will the IPO offering be available (completion of the project)? **(3 Marks)**

- iii) What will be the effect on the project if activity “e” (approvals) takes 2 extra weeks? **(3Marks)**
  
- iv) If the offering for the IPO has to be available 1 week earlier than the time as indicated in (ii) above, and given that activities *d*, *g*, *e* and *h* can all be crashed by 1 week at the same cost for each activity (which is lowest cost for all the activities), which activity would you choose to crash by 1 week so as to avail the IPO offer one week earlier than anticipated and why? **(3Marks)**
  
- v) What managerial precautions should be taken into account while crashing a project? **(5 Marks)**