



MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF BUSINESS ENTREPRENEURSHIP AND MANAGEMENT

SCIENCES

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR DEGREE IN
BACHELOR OF SCIENCE IN ELECTRICAL AND ELECTRONICS ENGINEERING**

EUC401: PROJECT MANAGEMENT

DATE: 16/6/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS:

Answer Question One and Any Other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

P. Muli was recently appointed to the post of investment manager of Masada Ltd. a quoted company. The company has raised Sh.8,000,000 through a rights issue.

P. Muli has the task of evaluating two mutually exclusive projects with unequal economic lives. Project X has 7 years and Project Y has 4 years of economic life. Both projects are expected to have zero salvage value. Their expected cash flows are as follows:

Project	X	Y
Year	Cash flows (Sh.)	Cash flows (Sh.)
1	2,000,000	4,000,000
2	2,200,000	3,000,000
3	2,080,000	4,800,000
4	2,240,000	800,000
5	2,760,000	-
6	3,200,000	-
7	3,600,000	-

The amount raised would be used to finance either of the projects. The cost of capital for the company is 20%. Masada Ltd. has no debt capital in its capital structure.

Required:

- a)
 - (i) The Payback period for each project. (5 marks)
 - (ii) The net present value of each project. (6 marks)
 - (iii) The Internal Rate of return (IRR) of the projects. (7 marks)
 - (iv) Outline two advantages and two disadvantages for internal rate of return. (2 marks)
- b) Discuss the importance of project management to telecommunication companies. (10 marks)

QUESTION TWO (20 MARKS)

Consider a project which has been modeled as follows:

Activity	Immediate Predecessor (s)	Completion Time (hours)
A	-	7
B	-	10
C	A	4
D	A	30
E	A	7
F	B,C	12
G	B,C	15
H	E,F	11
I	E,F	25
J	E,F	6
K	D,H	21
L	G,J	25

Required:

- Determine the project's expected completion time and its critical path. (12 marks)
- Can activities E and G be performed at the same time without delaying the completion of the project? (2 marks)
- Discuss the importance of critical path management. (6 marks)

QUESTION THREE (20 MARKS)

- A small company will be introducing a new line of lightweight bicycle frames to be made from special aluminium alloy and steel alloy. The frames will be produced in two models, deluxe and professional. The anticipated unit profits are currently Sh.1,000 for a deluxe frame and Sh.1,500 for a professional frame. The number of kilogrammes of each alloy needed per frame is summarized in the table below. A supplier delivers 100 kilogrammes of the aluminium alloy and 80 kilogrammes of the steel alloy weekly.

	Aluminium alloy	Steel alloy
Deluxe	2	3
Professional	4	2

Required:

- i) Formulate the problem functions. (4 marks)
- ii) Determine the optimal weekly production schedule. (12 marks)
- iii) Explain the limitations of the technique you have used to solve part (a) above. (4 marks)

QUESTION FOUR (20 MARKS)

A construction project consists of the activities shown below:

Activities	Time (weeks)		
	Optimistic	Most likely	Pessimistic
1-2	4	6	10
1-3	3	5	9
2-4	7	12	20
2-5	3	5	8
3-4	6	11	15
4-5	4	6	11
4-6	3	9	14
5-6	2	4	8
6-7	3	5	9

Required:

- (a) The expected time and variance of each activity. (6 marks)
- (b) A project network for the activities. (6 marks)
- (c) The expected completion time and variance of the project (2 marks)
- (d) If the project is completed in less than 30 weeks, it will cost Sh. 1.0 million. It will cost Sh. 1.5 million if the project is completed between 30 and 35 weeks and Sh. 1.20 million if it takes more than 35 weeks. Compute the expected cost of the project. (6 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the benefits and limitations of cost and benefit analysis. (10 marks)
- b) Kiwanda Limited is considering the purchase of a new machine. Two alternative machines, Pesi TZO and Upesi MO2, which will cost Sh.6,000,000 and Sh.7,000,000 respectively are available in the market, the depreciation rate for Pesi TZO is 25 % at cost while Upesi MO2 is 20 % reducing balance. The corporation tax is 40%. The cash flow after taxation of each machine are as follows:

Year	Cash flow	
	Pesi TZO	Upesi MO2
	Sh.	Sh.
1	600,000	1,800,000
2	1,800,000	2,400,000
3	2,000,000	3,000,000
4	3,000,000	1,800,000
5	2,400,000	1,600,000

Required

- a) Compute the Pay- back period for each project. (5 marks)
- b) Determine the accounting rate of return for each project. (5 marks)