NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI, ABUJA
FACULTY OF MANAGEMENT SCIENCES
DEPARTMENT OF FINANCIAL STUDIES
2021_1 EXAMINATION

COURSE CODE: MBF 843 **CREDIT UNIT: 3**
COURSE TITLE: Capital Investment and Financial Decisions
TIME ALLOWED: $2^1/2$HRS
INSTRUCTIONS:
1. Attempt Question One (1) and any other three (3) questions
2. Question 1 carries 25 marks, while the other questions carry 15 marks each
3. Present all points in coherent and orderly manner

Question 1

(a)

Joy Yomi Ltd has a cost of capital of 10% and has a limit of ₦20,000,000 available for investment in the current period. Capital is expected to be freely available in future periods. The following projects are being considered:

Initial Projects	Investments ₦	NPV at 10% ₦
A	7,000,000	3,500,000
B	8,000,000	4,500,000
C	13,000,000	7,600,000
D	8,600,000	6,300,000
E	4,600,000	1,800,000

You are required to calculate the optimal investment plan:

(i) Where there are no alternative investments available for any surplus funds. **($7^1/2$ marks)**

(ii) Where surplus funds can be invested to produce 12% perpetuity. **($7^1/2$ marks)**

(b) **Write short notes on:**

(i) Single period capital rationing, (ii) Real cash flows. (iii) Multi- period capital rationing (iv) Two stage discounting (v) Single discounting (vi) Money cash flows

(10 marks)

Total = 25 marks

Question 2

Oyewole Ltd is contemplating investing in a project and the following tentative estimates have been made.

Cash outlay - N100,000	(in year 0)
Sales price/unit - N30	
Unit cost - N20	
Discount rate	10% p.a.
Life span of project	3 yrs.
Year	Sales volume
1	4000 units
2	6000 units
3	3000 units

Required

Calculate the maximum tolerable unfavourable change in each of the areas (as a percentage of the original estimated value) in:

i. Sales unit
ii. Unit cost
iii. Sales volume
iv. Initial outlay
v. Project File

Comment on the results.

Discounting factor at10%		N
Year	0	1.000
	1	0.909
	2	0.826
	3	0.751

Total Marks = 15marks

Question 3

(a)

Ugugu, Apafa Plastic Ltd. is considering investment in two mutually exclusive projects – 1 and 2, each having a life span of 5 years and no residual value.

	Project 1	**Project 2**
	₦	**₦**
Net Cash Inflows	(375,000)	(480,000)
Year 1	120,000	105,000
Year 2	90,000	112,500
Year 3	97,500	120,000
Year 4	105,000	127,500
Year 5	112,500	127,500

The company does not accept any rate of return that is less than 15%.

Required

Using the Accounting Rate of Return on average capital employed, evaluate the above two projects and advise the company accordingly.

Marks = 5marks

(b) Asupenmotari Engineering co. is about to decide which type of machine tool to buy, of the two types available. Type 1 costs ₦100m and the net annual income from the first three years of its life will be ₦30m, ₦40m and ₦50m respectively. At the end of this period, it will be worthless except for scrap value of N10m. To buy a type A tool, the company would need to borrow from a Finance company at 9%. Type 2 will last for three years too, but will give a constant net annual cash flow of ₦30m. It costs ₦60m but credit can be obtained from its manufacturer at 6% interest. It has no scrap value.

Require

Evaluate the above investment projects using the Net present value criterion and indicate which investment would be the more profitable.

Marks = 10 Marks

Total = 15 marks

Question 4(a)

Idumagbodi & Sons has been looking for a suitable investment which will give a target internal rate of return of 17 to 20%. An investment adviser has offered the company a project, the details of which are given below: Initial investment outlay involving the purchase of machinery for ₦18m, and installation expenses of ₦3m. The plant can produce 100,000 cartons of pineapple squash per annum, during the first two years, rising to 125,000 cartons per annum, for the next three years. Cost of production of each carton, excluding depreciation costs is ₦210 and the selling price will be ₦270. The plant will be scrapped at the end of the 5th year and is expected to have negligible scrap value.

You are required to determine the actual internal rate of return of the above project. (13 marks)

(b) What are the advantages of internal rate of return method of project appraisal. (2 Marks)

Total = 15marks

Question 5

Aiyenijo Joseph Ltd is considering five different investment projects. The company's cost of capital is 12%. Data on these projects under consideration are given below:

Project	Investment ₦ '000	PV at 12% ₦ '000	NPV ₦ '000	IRR %	Profitability Index
I	700,000	786,500	86,500	16	
II.	400,000	458,600	58,600	15	
III.	500,000	549,060	49,060	14	
IV.	200,000	217,080	17,080	18	
V.	180,000	174,980	(5,020)	11	

Required:

(i) Compute the profitability index of the above projects **(5 marks)**

(ii) Rank the above five projects in descending order of preference, according to: NPV, IRR and profitability index. **(6 marks)**

(iii) Which ranking would you prefer? . **(2marks)**

(iv) Based on your answer in part 2, which projects would you select if ₦1,100, 000,000 is the limit to be spent? . **(2 marks)**

Total = 15 marks