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(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER

MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF COMMERCE

COURSE CODE : BCF 323

COURSE TITLE : FINANCIAL RISK MANAGEMENT

DATE: 21ST APRIL, 2023 **TIME: ~~2.00PM~~ – 4.00PM** 9.00AM

INSTRUCTIONS TO CANDIDATES

1. Answer a total of **three** questions; question **one** and any ofthe **two** questions.
2. Question **one** carries **30 marks** and each of the other two questions carry **20** marks each.

TIME: 2 HOURS

SECTION A

QUESTION ONE (Compulsory).

(a) **JS Inc.** is a global Corporation with its headquarters in Brazil. Its operations are confined to natural resources and it has three main lines of business: Minerals exploration, production and processing the main minerals under consideration. These minerals are Coal, Copper, Iron Ore, Diamonds, Silver, Lead and Zinc, Hydrocarbon exploration and production primarily petroleum and Steel production.
In the year 2021, 40 percent of its revenues came from Brazil and the remaining from USA (15 percent), Japan (10 percent), United Kingdom (10 percent), German (8 percent), the Gulf region (12 percent) and Africa (5 percent).
From the information, it is evident that the Company's revenues are geographically diversified.
However given the nature of its business, this Company is exposed to a variety of financial risks.
Required.
Identify and discuss the probable risks that JS Inc.is exposed to by virtue of its business operations and in each case suggest ways and techniques by which JS Inc. Can put in place to mitigate the risks.
(10 Marks).

(b) Consider a stock priced at Kshs 80 which pays a dividend of Kshs 12 per share in three months. The risk free rate is 10%.
Required.
Calculate the forward rate for a 10 month forward contract. **(4 Marks).**

(c) Suppose the domestic currency is the Kenyan Shilling and the foreign currency the US Dollar.
If the spot exchange rate is Kshs 124 per 1 $ (US Dollar) and that the Kenyan Interest rate is 12% p.a while that of the US is 6% p.a.These interest rates are continuously compounded and assumed to be fixed over the life of the contract.
Required.
Calculate the forward price of a six month contract. **(4 Marks).**

(d) A Company is considering two mutually exclusive projects: Project A and B.
The Company uses certainty equivalent approach in the risk analysis of the projects.
The estimated cash flow and certainty equivalents for each project are as follows:

	Project A		**Project B**	
Year	**Cash flow**	**Certainty Equivalent**	**Cash flow**	**Certainty Equivalent**
0	(37,000)	1.000	(22,000)	1.000
1	22,000	0.90	18,100	0.90

2	18,400	0.70	17,130	0.70
3	16,000	0.50	16,700	0.50
4	12,000	0.30	14,830	0.30

The Risk free discount rate is given as 10%.

Required.

Compute the NPV of the projects taking into account the certainty equivalents and advise regarding the expected decision by the company. **(8 Marks).**

(e) Highlight and briefly explain at least two advantages associated with use of Interest rate Swaps. **(4 Marks).**

SECTION B.

QUESTION TWO.

(a) (i). Distinguish between Triangular and Covered Interest arbitrage. **(2 Marks).**

(ii). Consider the following actual exchange rates spotted in ABSA Bank along Loita Street in Nairobi.

1 Kenyan shilling	=	0.009 US Dollars.
1 Tanzanian shilling	=	0.0005 US Dollars.
1 Kenyan shilling	=	Tanzanian Shillings 19.

Required.
Compute the gain from triangular arbitrage for an investor with US Dollars 388,000 to invest. **(6 Marks).**

(iii) James has Kshs 15 Million to invest for 4 Months. The Current spot rate of the Tshs is Kshs 0.053.The four months forward rate of the Tshs is Kshs 0.058.The interest rate in Kenya is 22% per annum while in Tanzania is 28% per annum.

Required.
Calculate the gain from Covered interest arbitrage for James. **(6 Marks).**

(b) Consider a put option with the following characteristics:

- Exercise Price Kshs 120.
- Premium per put option Kshs 12.
- Time to expiry for the option 6 months.

Required.
Calculate the value of the put option and the profit or loss assuming the following spot prices of the underlying security after six months.

Shs 95.Sh 115, Shs 120, Shs 145, Sh 90. **(6 Marks).**

QUESTION THREE.

(a) Henry, a portfolio manager investment provides the following data regarding various portfolios below.

Portfolio	Expected Return (%)	Standard deviation (%)
1	18	28
2	15	23
3	10	15
4	12	9
5	15	20
6	13	16
7	22	22
8	14	17
9	16	19
10	11	16

Required: -

Determine which of the above portfolios constitute the efficient set. **(10 Marks).**

(b) The following information is available regarding two stocks: X and Y.

	Stock X		Stock Y
Expected Return	14%		32%
Standard deviation	16%		48%
Coefficient of Correlation		0.30	

Required.

(i) Calculate the Covariance between X and Y. **(5 Marks).**

(ii) Calculate the expected return and risk of a portfolio in which X and Y are weighted in the ratio 2:3. **(5 Marks).**

QUESTION FOUR.

(a) The following details are in respect of ABC Fund.

Security	Actual Return	Beta(β)	Standard Deviation(σ)

A	0.58	1.80	0.60
B	0.24	1.20	0.35
C	0.42	0.90	0.50
D	0.20	1.20	0.30
E	0.25	0.80	0.26
F	0.24	0.90	0.16
N.S.E Index	0.18	1.00	0.22
Treasury Bills	0.12	0	0.00

Required.

(i) Determine the securities in the above table that are overpriced and those that are underpriced in terms of the SML/CAPM. **(10 Marks).**

(ii) Arising from your findings in (i) above, what would be your next course of action for both overpriced and underpriced securities. **(2 Marks).**

(b) With specific reference to Commodity risk, highlight and briefly discuss four most prevalent forms of commodity risk and how they arise in business organizations. **(8 Marks).**

QUESTION FIVE.

(a) Highlight with a brief description the main sources of Interest risk and also demonstrate their impact on the activities of business entities and individuals. **(10 Marks).**

(b) Assume that the TSh exhibits a 6 month interest rate of 20% p.a while the Kshs exhibits a 6 month interest rate of 16% p.a.

Required.

(i) Compute the forward rate premium of the Tsh with respect to the Kshs according to Interest rate parity. **(3 Marks).**

(ii) If the current spot rate of the TSh is Kshs 0.058, compute the six month forward rate of the TSh with respect to the Ksh. **(3 Marks).**

(iii) Compute the gain from covered interest arbitrage to a Kenyan investor with Kshs 14 Million for a six month period. **(4 Marks).**