CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN FINANCE

MSCF 843: FINANCIAL ECONOMETRICS

STREAMS: **TIME: 3 HOURS**

DAY/DATE: WEDNESDAY 07/04/2021 **8.30 A.M – 11.30 A.M**

INSTRUCTIONS:

Answer question one and any other three question

QUESTION ONE

(a) As a financial firm trading in the securities exchange discuss the relevance of financial econometrics. [8 marks]

(b) In 1973, Black and Scholes published their famous paper on option pricing while Merton launched general asset pricing. As a scholar, critique their models and discuss their contribution to the growth of financial econometrics. [15 marks]

(c) ABC computer system has forecast returns on its share with the following probability distribution;

Returns (%)	Pro
-20	0.05
-10	0.05
-5	0.10
5	0.10
10	0.15
18	0.25
20	0.25
30	0.05

Required : Calculate

(i) Expected return [1 mark]

(ii) Variance [2 marks]

(iii) Standards deviation [1 mark]

(d) Discuss four characteristics of a good estimator. [8 marks]

(e) Compare and construct regression analysis to correlation analysis. [5 marks]

QUESTION TWO

(a) Time variation in volatility is a common feature of macroeconomic data. Discuss this statement in relation to analysis of time series data. [7 marks]

(b) An aggressive mutual fund promises an expected return of 16% with a possible vitality of 20%. On the other hand, a conservative mutual fund promises an expected return of 13% and volatility of 15%.

Required ;

(i) Advise an investor on the where to invest in these two funds. [2 marks]

(ii) Assuming you can borrow money from provident fund at an opportunity cot of 10%, which fund would you invest in. [3 marks]

(iii) Would you consider both funds if you can lend or borrow at 10%. [2 marks]

QUESTION THREE

(a) In an attempt to control the quality of output for a manufactured part, a sample of parts is chosen randomly and examined in order to estimate the population proportions of parts that are defective. The manufacturing process operates continuously unless it must be stopped for inspection or adjustment. In the last sample of 90 parts, 15 defective are found.

Required ;

Determine the following estimates of π the population proportion defective one a:

(i) Point estimate [2 marks]

(ii) 98% interval estimate [3 marks]

(b) P limited has an expected return of 22% and standard deviation of 40%. Q ltd has an expected return of 24% and a standard deviation of 38%. P has a beta 0.86 and Q 1.24. The correlation between the returns of P and Q is 0.71. The standard deviation of the market return is 20%.

Required :

(i) Determine if investing in Q is better than investing in P. [2 marks]

(ii) If you invest 30% in Q and 70% in P, what is your expected rate of return and the portfolio standard deviation. [3 marks]

(iii) Determine the market portfolio expected rate of return. [3 marks]

(c) Discuss relevance of business forecasting in a firm. [5 marks]

QUESTION FOUR

(a) Discuss different types of data that can be of importance in financial analysis. [6 marks]

(b) Discuss assumptions of ordinary least squares (OLS) highlighting how they can be adhered to. [9 marks]

QUESTION FIVE

(a) The following information relates, to the performance of eight companies listed in the markets.Its assumed that performance of these companies depends on the board of management experience and their rating in corporate governance.

Company	1	2	3	4	5	6	7	8
Boards exp	10	12	18	4	3	10	5	12
Bonds rating	87	88	89	68	78	80	75	83

Required ;

Determine :

(i) The regression line of relationship between boards experience and corporate bonds rating. [4 marks]

(ii) The probable performance if the board has an experience of 10 years. [2 marks]

(b) Explain the meaning of the following terms as used in analysis of financial data:

(i) Normality [1 mark]

(ii) Autocorrelation [1 mark]

(iii) Specifications error [1 mark]

(iv) Mort collinearity [1 mark]

(c) For each of the above (b) explain how they can be tested during analysis of financial data. [5 marks]
