

SECTION A: COMPULSORY

QUESTION ONE (10mks)

- a) Explain the following terms
- i. Financial information systems (1mks)
 - ii. Financial modelling (1mks)
 - iii. Monte Carlo Simulation (1mks)

- b) Distinguish between time series and sensitivity analysis (4mks)

- c) Consider the following data about XYZ limited

Age of the Company (X)	Profit in \$ (million) (Y)
1	10
2	12
3	14
4	13
5	20

- i. Derive the linear regression equation for the following data (1mk)
- ii. Find the profit when the age of the company $X = 10$ (2mks)

QUESTION TWO (10mks)

- a) Distinguish between investment decisions and asset management management financial information systems (2mks)
- b) Discuss FOUR financial models used in investment decision making (8mks)

QUESTION THREE (10mks)

- a) Discuss TWO types of options (2mks)
- b) Using the following option pricing model and related data $K = 45$; $S_t = 40$ $t = 4/12$; $r = 0.03$; $SD/\sigma = 0.4$; $N = 0.07$, calculate the value of the call option (8mks)

$$C = N(d_1)S_t - N(d_2)Ke^{-rt}$$

$$\text{where } d_1 = \frac{\ln \frac{S_t}{K} + (r + \frac{\sigma^2}{2})t}{\sigma\sqrt{t}}$$

$$\text{and } d_2 = d_1 - \sigma\sqrt{t}$$

C = call option price

N = CDF of the normal distribution

S_t = spot price of an asset

K = strike price

r = risk-free interest rate

t = time to maturity

σ = volatility of the asset

QUESTION FOUR (10mks)

a) Discuss FIVE types of Financial Information Systems (5mks)

b) Describe the FIVE elements of financial information system (5mks)

QUESTION FIVE (10mks)

a) Discuss two models that can be used in financial forecasting (4mks)

b) A common financial model for valuing dividend earning assets is the discounted dividend model. Consider Company “Rich” plans to pay Kes 2.6 in dividends in year 4. Find the current value of share = P_0 if return is 5% (6mks)

QUESTION SIX

Mr. Omondi is a financial analyst who schedules her clients for 30 min appointments. Some of the clients take less or more than 30 mins depending on the type of work to be done. The following shows the various categories of work to be done and the probabilities

Category of work	Time	No.of Patients	Probability	Cumulative Probability	Distribution Points
Advisory	45	40			
Build client models	60	15			
Others	15	15			
Forecasting	45	10			
Analyse results	15	20			

Required

- a) Simulate the financial analyst work for 4 hrs
(4mks)
- b) Find out average waiting time for the clients
(4mks)
- c) Find the idleness of the financial analyst
(2mks)

Assume that all the patients show up at exactly their scheduled time starting 8:am. Use the following random numbers to analyse the problem 40, 82, 11, 34, 25, 66, 17, 79