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UNIVERSITI KUALA LUMPUR
BUSINESS SCHOOL

# FINAL EXAMINATION
# OCTOBER 2025 SEMESTER

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|---|---|
| COURSE CODE | EGB20703 |
| COURSE TITLE | FINANCIAL ECONOMICS 1 |
| PROGRAMME NAME | BACHELOR OF SCIENCE (HONS) IN ANALYTICAL ECONOMICS |
| DATE | 24 JANUARY 2026 |
| TIME | 02:00PM - 05:00PM |
| DURATION | 3 HOURS |

## INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Answer ALL questions for Section A.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet. ☐ *Tick if applicable*
9. Refer to the attached Formula/ Appendies. ☑ *Tick if applicable*

THERE ARE 7 PAGES OF QUESTIONS INCLUDING THIS PAGE

SECTION A (Total: 40 marks)

**Answer ALL questions.**

**Please use the answer booklet provided.**

**Question 1**

Answer the following questions.

(a) A payment system is a method of conducting transactions in an economy, and it has changed a lot over time. Briefly explain the changes that have occurred in the payment system.

(5 marks)

(b) The financial sector is one of the most heavily regulated sectors of the economy. Give two main reasons with explanations why it is heavily regulated.

(5 marks)

**Question 2**

Answer the following question.

(a) Explain two key differences between the Arbitrage Pricing Theory (APT) and the Capital Asset Pricing Model (CAPM) in terms of their assumptions and factor structures.

(5 marks)

(b) What is the security market line (SML) in the Capital Asset Pricing Model (CAPM), and what does it represent?

(5 marks)

## Question 3

Answer the following question.

(a) What roles do financial intermediaries play in the economy?

(5 marks)

(b) Distinguish between the money market and the capital market in terms of their purpose and the types of instruments traded.

(5 marks)

## Question 4

Answer the following questions.

(a) Define moral hazard and adverse selection in financial markets, and explain one key difference between them.

(5 marks)

(b) What is a bond's coupon rate, and how does it differ from the yield to maturity?

(5 marks)

**SECTION B (Total: 60 marks)**

**Answer THREE (3) questions only.**

**Please use the answer booklet provided.**

**Question 1**

A company plans to invest in a new project with an initial investment of RM30,000. The project is expected to generate RM9,500 annually at the end of each year for the next 5 years. At the end of year 5, the company expects to sell the project for RM20,000. The required rate of return is 6% per annum, compounded annually.

(a) Calculate the Present Value (PV) of all expected cash inflows.

(8 marks)

(b) If the total PV from part (a) is invested again for 4 more years at the same 6% rate, calculate the Future Value (FV) of that investment at the end of year 9.

(6 marks)

(c) Calculate the Net Present Value (NPV) of the project and state whether the project should be accepted.

(6 marks)

**Question 2**

A stock is currently trading at RM100, and several European option contracts on this stock are available. The call option has a strike price of RM105 and a premium of RM6, while the put option has the same strike price of RM105 but a premium of RM4. The risk-free rate is ignored. Using the payoff and profit formulas for calls, puts, protective puts and covered calls answer the following question:

(a) Calculate the payoff and profit to both the call holder and the put holder when the stock price at expiration falls to RM95 and when it rises to RM110. Use the definitions from the slides, where the payoff to a call option is the maximum of (ST−X) and zero, the payoff to a put is the maximum of (X−ST) and zero, and the profit for each option is the payoff minus the premium. Your answer must clearly show each step of the calculation.

(8 marks)

(b) An investor buys 1 share of the stock at RM100 and 1 put option (premium RM4) with strike price RM105. By using the protective-put payoff structure, compute the total portfolio value and profit at expiration for:
i. ST=RM80
ii. ST=RM100
iii. ST=RM115
Show all steps.

(6 marks)

(c) An investor buys 1 share at RM100 and writes a call (strike RM105, premium RM6). Based on the covered-call payoff pattern, calculate the profit of the covered call portfolio when:
i. ST=RM95
ii. ST=RM105
iii. ST=RM120
Show all workings.

(6 marks)

**Question 3**

A 10-year RM1,000 par bond with a 6% annual coupon (paid annually) has a required yield (YTM) of 8% per annum.

(a) Calculate the price of bond based on the given information

(9 marks)

(b) State whether it is selling at a premium or discount.

(2 marks)

(c) Compute the capital gain or loss if the bond is sold immediately after purchase when the market yield falls to 7%

(9 marks)

**Question 4**

You are given the following information about three companies listed in the stock market:

| Company | Expected Return | Beta |
|---|---|---|
| A | 12% | 1.4 |
| B | 8% | 0.7 |
| C | 15% | 1.8 |

Additional market information:

Risk-free rate, $R_f$= 4%

Market return, $E(R_m)$ = 10%

Use the Capital Asset Pricing Model (CAPM) to answer the following:

(a) Calculate the required rate of return for each of the three companies (A, B, and C).

(9 marks)

(b) Compare your answers in part (a) with the expected returns provided in the table. Determine whether each stock is:

i. Overpriced

ii. Underpriced

iii. Fairly priced

(6 marks)

(c) If an investor wants to form a portfolio that consists of 40% in Company A and 60% in Company C, calculate the portfolio beta and required portfolio return according to CAPM.

(5 marks)

**END OF EXAMINATION PAPER**

## FORMULA

### Future Value

$$FV = PV\,(1+i)^n$$

### Effective Annual Rate

$$EFF(APR,\ m) = \left(1+\frac{APR}{m}\right)^m - 1$$

- Where;

APR = annual percentage rate

m = the number of compounding periods per year

### Present Value

$$PV_{FV}(FV,\ i,\ n) = \frac{FV}{(1+i)^n}$$

### Utility Function

$$U = E(r) - \frac{1}{2}A\sigma^2$$

*Where;*

*U* = utility

*E ( r )* = expected return on the asset or portfolio

*A* = coefficient of risk aversion

s² = variance of returns

½ = a scaling factor

### Expected Return of the complete portfolio

$$E(r_c) = r_f + y\left[E(r_P) - r_f\right]$$

### Variance

$$\sigma_C^2 = y^2\sigma_P^2$$

### Slope/Sharpe ratio

$$Slope = \frac{E(r_P) - r_f}{\sigma_P}$$

### Two-Security Portfolio Return

$$E(r_p) = w_D E(r_D) + w_E E(r_E)$$

### Two-Security Portfolio: Risk

$$\sigma_p^2 = w_D^2\sigma_D^2 + w_E^2\sigma_E^2 + 2w_D w_E Cov(r_D, r_E)$$

### Single Factor Model

$$r_i = E(r_i) + \beta_i m + e_i$$

### Single Index Model Regression Equation

$$R_i(t) = \alpha_i + \beta_i R_M(t) + e_i(t)$$

### Expected Return Beta Relationship

$$E(R_i) = \alpha_i + \beta_i E(R_M)$$

### Variance Single-Index Model

$$\sigma_i^2 = \beta_i^2\sigma_M^2 + \sigma^2(e_i)$$

### Covariance Single-Index Model

$$Cov(r_i, r_j) = \beta_i\beta_j\sigma_M^2$$

### Portfolio Variance

$$\sigma_P^2 = \beta_P^2\sigma_M^P + \sigma^2(e_P)$$

### Portfolio sensitivity

$$\beta_P = \frac{1}{n}\sum_{i=1}^{n}\beta_i$$

### Market Risk Premium

$$E(R_M) = \bar{A}\sigma_M^2$$

Where

$\bar{A}$ = investors risk aversion

$\sigma_M^2$ = variance of the market portfolio

### CAPM

$$E(r_M) = r_f + \beta_M\left[E(r_M) - r_f\right]$$

**Multifactor Model Equation**

$$r_i = E(r_i) + \beta_{iGDP} GDP + \beta_{iIR} IR + e_i$$

**Multifactor SML Models**

$$E(r_i) = r_f + \beta_{iGDP} RP_{GDP} + \beta_{iIR} RP_{IR}$$

**Bond Pricing**

$$P_B = \sum_{t=1}^{T} \frac{C_t}{(1+r)^t} + \frac{ParValue}{(1+r)^T}$$

$P_B$ = Price of the bond

$C_t$ = interest or coupon payments

T = number of periods to maturity

r = semi-annual discount rate or the semi-annual yield to maturity

**Yield to Maturity**

**Yield to Maturity (YTM) = [Annual Coupon + (FV – PV) ÷ Number of Compounding Periods)] ÷ [(FV + PV) ÷ 2]**

**Holding Period Return**

$$\textit{Holding Period Return} = \frac{Income + (End\ Of\ Period\ Value - Initial\ Value)}{Initial\ Value}$$

**FORMULA**

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