

**NOVEMBER 2019 PROFESSIONAL EXAMINATIONS
FINANCIAL MANAGEMENT (PAPER 2.4)
CHIEF EXAMINER'S REPORT, QUESTIONS AND MARKING SCHEME**

STANDARD OF THE PAPER

The standard and quality of paper was generally good and in line with expectation. Additionally, the questions were distributed fairly across the syllabus and mix between quantitative and theory questions was 64% and 36% respectively a shift towards quantitative compared to prior sitting of 53% to 43% respectively. The theory questions were generally straight forward that produced good answers from candidates. The style of questions was easy to understand and apply by students who prepared well and had knowledge of the subject.

No sub-standard questions were noted in the paper and the quality of questions considered appropriate for that level. Mark allocations were also considered to be satisfactory and fair. In terms of marking scheme, it was reviewed and aligned to the question paper. Alternative solutions were also provided where necessary to accommodate various approaches to answering the questions.

PERFORMANCE OF CANDIDATES

The performance of the students showed a remarkable improvement in this sitting compared to the prior sitting. The pass rate was about 23% compared to the previous sitting of 7% driven by combination of good questions and better preparation by students.

The possible reasons for some poor performance were as follows:

- Inadequate preparation by some students.
- Poor questions answering skills.
- Poor, labelling of questions, handwriting and use of faded pens making reading and marking difficult.
- Poor knowledge in answering questions that required thorough knowledge and understanding of the subject.

NOTABLE STRENGTHS & WEAKNESSES OF CANDIDATES

The about 23% of the students who passed the paper and those who did well in some questions exhibited the following strengths:

- Improvement in the understanding of the requirements of the questions.
- Better appreciation and preparation in the theory areas of the syllabus.
- Improvement in understanding and application of what was studied.
- Better understanding of the requirements of quantitative aspect of the questions.
- Growth in knowledge and understanding of how to handle applied questions in the exams.

Observed reasons of the strengths:

- Enhancement in the quality of tuition
- Access to quality study materials through the use of technology
- Better preparation this time due to the poor performance for last sitting.

The strengths can be enhanced by:

- Review of the study materials relevant to the new syllabus
- Improving on digital channels of study
- Knowledge and experience sharing by good performing past students

Observed weaknesses demonstrated by students

- Still poor understanding of finance principles by some students
- Weak knowledge and poor handling of the non-quantitative aspect by some students
- Continuous poor numbering of answers to questions making it difficult for examiners
- Deterioration in arrangement of answers to questions with answers to some questions scattered across different pages haphazardly
- Still poor handwriting and faded pens making reading and marking difficult for examiners

Remedies for observed weaknesses

- Performance feedback sessions by the Institute or through the various tuition centres
- Use and practice more on exercises and past questions,
- Review of the evaluation process for student's enrolment

QUESTION ONE

- a) The financial sector is one of the most highly regulated sectors of any country. Notably, each industry under the financial sector has a special regulatory framework consisting of statutes to shape the conduct of participants in the industry and a regulator to foresee compliance and promote fairness and efficiency.

Required:

- i) Describe **THREE (3)** functions the Securities and Exchange Commission of Ghana (SEC) is expected to perform towards achieving fairness and efficiency in the securities industry. **(6 marks)**
- ii) Explain **TWO (2)** implications of the regulatory functions of the SEC for corporate investing and financing activities. **(4 marks)**
- b) A colleague has been taken ill. Your managing director has asked you to take over from the colleague and to provide urgently-needed estimates of the discount rate to be used in appraising a large new capital investment. You have been given your colleague's working notes, which you believe to be numerically accurate.

Working notes: Estimates for the next five years (annual averages)

Stock market total return on equity	16%
Own company dividend yield	7%
Own company share price rise	14%
Standard deviation of total stock market return on equity	10%
Systematic risk of own company return on equity	14%
Growth rate of own company earnings	12%
Growth rate of own company dividends	11%
Growth rate of own company sales	13%
Treasury bill yield	12%

The company's gearing level (by market values) is 1 : 2 debt to equity, and after-tax earnings available to ordinary shareholders in the most recent year were GH¢54,000,000, of which GH¢21,400,000 was distributed as ordinary dividends.

The company has 1 million issued ordinary shares which are currently trading on the Stock Exchange at GH¢3.21. Corporate debt may be assumed to be risk-free. The company pays tax at 30% and personal taxation may be ignored.

Required:

Estimate the company's weighted average cost of capital using:

- i) The dividend valuation model;
ii) The capital asset pricing model.

State clearly any assumptions that you make.

Under what circumstances these models would be expected to produce similar values for the weighted average cost of capital? **(10 marks)**

(Total: 20 marks)

QUESTION TWO

Global companies continuously explore ways to be more efficient and effective to survive the challenging global competition. Some resort to mergers and acquisitions to survive. In the light of this, Carsley Ltd and Powell Ltd are planning to merge to form Stimac Ltd. It has been agreed that Powell's shareholders will accept three shares in Carsley for every share in Powell they hold. Other details are as follows:

	Carsley Ltd	Powell Ltd
Number of shares	40m	10m
Annual earnings	GH¢10m	GH¢5.8m
P/E ratio	8	10

Post-merger annual earnings of the enlarged company are expected to be eight per cent higher than the sum of the earnings of each of the companies before the merger, due to economies of scale and other benefits. The market is expected to apply a P/E ratio of 9 to Stimac Plc.

Required:

- a) Explain to the stakeholders of both companies the justification on for the following integration strategies in mergers and acquisitions.
 - i) Horizontal take-over. **(4 marks)**
 - ii) Vertical backward and forward take-overs. **(4 marks)**
 - iii) Conglomerate mergers. **(2 marks)**

- b) Determine the extent to which the shareholders of Powell will benefit from the proposed merger. **(10 marks)**

(Total: 20 marks)

QUESTION THREE

- a) Joy Mummy Ltd is establishing an endowment fund to finance a scholarship scheme to provide funding for the education of children of its employees. The company plans to make an initial deposit of GH¢500,000 into the fund now. The initial deposit will be invested for three years before any disbursements will be made from the fund. The effective annual rate of return on the fund is expected to be 14% in the first year, 15% in the second year, and 16.5% in the third year.

Required:

- Compute the balance of the fund at the end of three years. **(4 marks)**

- b) Wobete Ltd is offering 5 million units of 15-year bonds with a face value of GH¢100 each. Though the bonds are being offered at a price of GH¢95 each, the bonds will be redeemed at a premium of 10%. The annual coupon rate of the bonds is 15%. Interest is payable at the end of every six months.

A provision in the bond indenture requires that Wobete Ltd establishes a sinking fund to accumulate enough money to pay the total redemption value of the bonds upon maturity. To comply with this provision, Wobete Ltd plans to set aside an even amount at the end of each quarter over the next 15 years. Each of the even amounts that will be set aside will be invested at an annual interest rate of 12% with quarterly compounding.

Required:

Calculate the even amount that should be put into the sinking fund at the end of each quarter to raise enough money to pay the total redemption value of the bonds. **(6 marks)**

c) Explain **TWO (2)** differences between *forward contracts* and *futures contracts*. **(5 marks)**

d) ValuePack Ghana Ltd is into the manufacturing and sale of drugs in Ghana. The company imports its raw materials from abroad on credit. The suppliers grant them between 3 months and 6 months credit due to their good track record in payment. The company currently has the following invoices due in:

- 3 months' time - USD 2 million
- 6 months' time - USD 1 million

They are looking to buy USD/GH¢ forward to hedge their exchange rate risk and their Bank offers them the following forward rates:

Tenor	Rates
3 months	- 5.65
6 months	- 5.98

The interest rates applicable to their company for both cedi and US dollar for the same tenors are as follows:

Tenor	GH¢ Interest Rate	USD interest rate
3 months	15%	2%
6 months	20%	3%

The Spot rate for USD/GH¢ is 5.4 in the market.

Required:

As the newly appointed Finance and Treasury Director of the company, calculate the forward rates for the various tenors based on the information provided above. **(5 marks)**

(Total: 20 marks)

QUESTION FOUR

The current financial year of General Kapito Ltd, a sports apparel company based in Ghana, will be ending in two months' time. The directors of the company will be meeting next week to approve capital projects that will be implemented in the coming financial year. A major concern for the coming year is the availability of finance to meet investment requirements.

The cost of raising new capital in Ghana's capital market has risen so high that it is not cost-effective to raise small blocks of capital. Consequently, the directors of the company have decided to finance new projects in the coming year with retained earnings and not raise new external capital from the capital market to bridge any financing gap. The maximum amount of retained earnings that will be available for financing new capital projects in the coming year is GH¢62 million.

There are six independent projects that will be presented before the board of directors for approval in their upcoming meeting. Five of the projects have been appraised already (see a summary of the projects in the table below).

Project	Investment requirement	Net present value (NPV)	Internal rate of return (IRR)
PROJECT-01	25	50	36.2%
PROJECT-02	15	45	37.1%
PROJECT-03	9	35	39.5%
PROJECT-04	12	20	34.8%
PROJECT-05	34	To be computed	To be computed
PROJECT-06	5	2	33.5%

Project-05 refers to a 5-year contract with a local football club for the manufacture and supply of a special football boot for playing under rainy conditions. It is estimated that this project will require an investment of GH¢34 million in plant and equipment at the start of the first year. The estimated cost of required plant and equipment might change as there are speculations about probable change in technology in the coming year. That notwithstanding, this project is expected to return an after-tax net operating cash flow of GH¢13.5 million every year over the coming five years. The estimated after-tax salvage value of the plant and equipment is GH¢10 million at the end of the fifth year.

The company's required rate of return is 25%.

Required:

- Compute the NPV and IRR of Project-05. **(10 marks)**
- Assess the sensitivity of the outcome of Project-05 to variations in the cost of plant and equipment. Interpret your result. **(5 marks)**
- Assuming the projects are divisible, recommend the portfolio of projects that should be funded in the coming year. **(5 marks)**

(Total: 20 marks)

QUESTION FIVE

- a) In driving the profitability and liquidity position of an organisation in the current local and global business environment, one area that has become the centre of focus or attention to Management is how working capital is managed. Aggressive, moderate and conservative policies to working capital management have implications on the profitability and liquidity positions of the organisation.

Required:

In the light of the above explain and demonstrate the impact of each of the policies below on profitability and liquidity:

- i) Aggressive Working Capital Management; **(2 marks)**
 - ii) Moderate Working Capital; **(2 marks)**
 - iii) Conservative Working Capital Management; **(2 marks)**
- b) Taaba Oil Ghana Ltd is an Oil Marketing Company operating in the downstream Sector of the Oil and Gas industry in Ghana. The company initially was offering 4 weeks credit to its retailers until it changed its strategy to reduce the credit period from 4 weeks to 2 weeks to manage down its financing cost and bad debt.

Under the 4 weeks credit regime, annual credit sales were 500 million litres. The profit made per litre before financing charge and bad debt was GH¢0.20 (Twenty pesewas). The total working capital was GH¢250m but 50% was funded through trade credit and the remaining 50% was through Bank Overdraft at an interest rate of 25% per annum. The cost of trade credit was already factored in the margin. Bad debt was at GH¢0.01 (one pesewa per litre) of the credit sales.

The change in policy from 4 weeks to 2 weeks was done immediately without prior advance discussion and notice period granted to retailers who were also selling on credit to their customers.

After operating the new credit policy, the volume of sales was negatively impacted as sales volume per annum dropped by 25% and bad debts increased by 100% due to pressure on the working capital of the retailers. As the new Finance Manager for Taaba Oil Ghana Ltd, you are tasked to review this policy.

Required:

- i) Calculate the profit under the old policy. **(4 marks)**
 - ii) Calculate the profit under the new policy. **(4 marks)**
 - iii) Based on your calculations above, advise management whether to revert to the old policy or maintain the new policy. **(1 mark)**
- c) Holding stock and sometimes over-stocking come at a great cost to a company. Notwithstanding these costs, it is sometimes necessary to hold stock or even over stock for the smooth running of the company

Required:

- i) Explain **TWO (2)** reasons for holding stock. **(2 marks)**
- ii) State and explain **THREE (3)** costs associated with holding stocks. **(3 marks)**

(Total: 20 marks)

SOLUTION TO QUESTIONS

QUESTION ONE

a)

i) **Functions of the SEC of Ghana**

The SEC of Ghana is expected to perform the following functions:

- to advise the Minister responsible for Finance on all matter relating to the securities industry
- to maintain surveillance over activities in securities to ensure orderly, fair and equitable dealings in securities;
- to register, licence, authorise or regulate stock exchanges, investment advisers, unit trust schemes, mutual funds, securities dealers, and their agents and to control and supervise their activities with a view to maintaining proper standards of conduct and acceptable practices in the securities business;
- to formulate principles for the guidance of the industry;
- to monitor the solvency of licence holders and take measures to protect the interest of customers where the solvency of any such licence holder is in doubt;
- to protect the integrity of the securities market against any abuses arising from the practice of insider trading;
- to adopt measures to minimize and supervise any conflict of interests that may arise for dealers;
- to review, approve and regulate takeovers, mergers, acquisitions and all forms of business combinations;
- to examine and approve of the new issue of securities on the stock exchange (i.e., IPO);
- to create the necessary atmosphere for the orderly growth and development of the capital market;

[3 functions @ 2 marks each = 6 marks]

ii) **Implications of the regulatory functions of SEC for corporate financing decisions**

The regulatory functions of the SEC have the following implications for corporate financing:

- When making securities offers, companies must ensure that the offer is fair and equitable. For instance, all potential buyers must be treated equally, and communications relating to the offer should be true and fair.
- The company, its members, and directors cannot trade securities based on insider information.
- The company cannot engage in any form of business combination without the approval of the SEC.
- The company will need approval from the SEC when making an IPO.

[Marks allocation: 2 implications @ 2 marks each = 4 marks]

b)

i) **Dividend valuation model**

If we assume a constant growth in dividends, we may estimate the cost of equity by using:

$$K_e = \frac{D_1}{MV_{\text{Ex div}}} + g = \frac{GH\text{¢}21,400,000 \times 1.11}{GH\text{¢}3,210,000} + 0.11 = 7.51 \text{ or } 751\%$$

Cost of debt (K_d), as corporate debt is assumed to be risk free, is 12%, the Treasury bill yield.

The after-tax cost is $12(1 - 0.30) = 8.4\%$

The weighted average cost of capital (WACC) is found as follows:

$$\begin{aligned} \text{WACC} &= \left(K_E \times \frac{MV_E}{MV_{\text{TOTAL}}} \right) + \left(K_D \times \frac{MV_D}{MV_{\text{TOTAL}}} \right) \\ \text{WACC} &= \left(751\% \times \frac{2}{3} \right) + \left(8.4\% \times \frac{1}{3} \right) = 503.45\% \end{aligned}$$

(5 marks)

ii) **Capital asset pricing model**

Cost of equity may be estimated using:

$$R_E = R_{RF} + \beta(R_M - R_{RF})$$

The beta value of the security may be found using:

$$\beta = \frac{\sigma_S}{\sigma_M} = \frac{14\%}{10\%} = 1.4$$

$$R_E = 12\% + 1.4(16\% - 12\%) = 17.6\%$$

$$K_d = 7.8\% \text{ as in part (i)}$$

$$\text{WACC} = \left(17.6\% \times \frac{2}{3} \right) + \left(8.4\% \times \frac{1}{3} \right) = 14.53\%$$

If the stock market is in equilibrium, and the inputs into the models are correctly specified (e.g., the dividend valuation model reflects only systematic risk), then the cost of equity K_e from the dividend valuation model should approximately equal the expected return on equity $E(re)$ of the CAPM.

(5 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

- This question consisted of (a) and (b) parts with two sub questions (i) and (ii) under each.
- The (a) (i) part covered the functions of the Securities and Exchange Commission (SEC) for 6 marks and (a) (ii) covered the implications of regulatory functions for corporate investing and financing activities for 4 marks
- The (b) part centred on the calculation of weighted Average Cost of Capital (WACC) using dividend valuation model and capital assets pricing for a total of 10 marks.
- On the average about 25% of the candidates got pass mark in this question. The (a) part was theory and was the part best answered with candidates struggling to compute the cost of equity, and beta value of the security in the (b) part of the question. Additionally, the cost of equity based on the question appeared unusually high and coming from the market value of equity. Either the share price in the question or the number of shares was not aligned.
- Students were marked based on how the question appeared on the question paper and the solution based on that.
- Overall it was a marginally answered and the third worst answered question

QUESTION TWO

a)

i) Horizontal take-over

- **Economies of scale**

The major justification put forward to explain horizontal mergers centre on the fact that the merging companies are in the same industry and so are likely to benefit from economies of scale. They may also benefit from synergy between operations as well.

- **Breaking entry barriers**

Horizontal mergers can also be justified as a way of breaking into new geographical markets.

- **Obtaining Monopoly Power**

Market share can also be a viable reason, so that companies can earn monopoly profits, but the bidder must beware of referral to the MMC.

- **Enhanced Shareholder value**

There may be financial economies and tax benefits from mergers, but increasing EPS is not a valid justification.

(2 points well explained @ 2 marks each = for 4 marks)

ii) Vertical backward and forward take-overs

- **Control of Raw Materials**

Here the major justification is that a company can either secure control of vital raw material or guarantee an outlet for, and control the distribution of its product.

- **Control of Distribution Channels**

This helps companies to reduce the power of suppliers or to decrease the revenue lost to distributors. Economies of scale or synergy are less likely to occur than with horizontal take-overs.

(2 points well explained @ 2 marks each = 4 marks)

iii) It is very difficult to see the rationale for conglomerate take-overs, as there will be few economies of scale or synergy due to the unrelated nature of the merging businesses. The take-over cannot be justified from the point of view of risk reduction, as shareholders are likely to hold diversified portfolios. Nor can the take-over be justified as the acquisition of a bargain, since if capital markets are efficient; the target's share price will reflect its true value.

(2 marks)

b)

- Powell's market value, using its P/E ratio and earnings, is $5.8m \times 10 = \text{€}58m$

(2 marks)

- The earnings of Stimac Ltd will be $(\text{€}10m + \text{€}5.8m) \times 1.08 = \text{€}17.06m$

(2 marks)

- Using a P/E ratio of 9, the value of Stimac is $\text{€}17.06m \times 9 = \text{€}153.54m$

(2 marks)

- The 10m shares of Powell will be swapped for 30m Carsley shares, making 70m shares in the new company in total. Therefore the wealth of Powell's shareholders will now be $\text{€}153.54\text{m} \times (30\text{m}/70\text{m}) = \text{€}65.8\text{m}$. (2 marks)
- Powell's shareholders are $\text{€}7.8\text{m}$ better off (78 cedis per share). (2 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

- Question 2 was a merger question with (a) part being theory on vertical take over, horizontal forward and backward take overs and conglomerate mergers. This part had a total of 10 marks. The pass rate was average
- The (b) part which was to determine the extent to which the shareholders of Powell who were to take new shares were to benefit from the proposed merger became difficult for students to determine. Most students scored low or poor marks here which carried a total of 10 marks and half the total marks for question 2.
- Overall performance in this question was generally poor with less 14% of the students passing in this question

QUESTION THREE

a) Endowment fund

$$FV_3 = P_0(1 + i_1)(1 + i_2)(1 + i_3)$$

$$FV_3 = GH\text{¢}500,000 \times (1.14 \times 1.15 \times 1.165)$$

$$FV_3 = GH\text{¢}500,000 \times 1.527315 = GH\text{¢}763,657.5$$

(Interest factor = 1; Computation of future value = 2; final answer = 1)

(4 marks)

b) Sinking fund

As the objective of the sinking fund is to raise enough money to pay the redemption value of the bonds when they mature in 15 years' time, the future value of the sinking fund (SF) should be equal to the total redemption value of the bonds (Total RV):

$$SF_{15} = Total RV_{15}$$

$$Total RV_{15} = Units \times (Face value \times Premium Factor)$$

$$Total RV_{15} = 5,000,000 \times (GH\text{¢}100 \times 1.10) = 5,000,000 \times GH\text{¢}110 \\ = GH\text{¢}550,000,000$$

$$SF_n = PMT \left[\frac{\left(1 + \frac{i}{m}\right)^n - 1}{\frac{i}{m}} \right] \left(1 + \frac{i}{m}\right)$$

The future value of the sinking fund, $SF_n = GH\text{¢}550,000,000$

Annual interest, $i = 12\%$

Frequency, $m = 4$

Term (in years), $t = 15$

Number of periods, $n = \text{Term} \times \text{Frequency} = 15 \times 4 = 60$

$$550,000,000 = PMT \left[\frac{\left(1 + \frac{0.12}{4}\right)^{60} - 1}{\frac{0.12}{4}} \right]$$

$$PMT = \frac{550,000,000}{\left[\frac{\left(1 + \frac{0.12}{4}\right)^{60} - 1}{\frac{0.12}{4}} \right]} = \frac{550,000,000}{163.0534368} = 3,373,127.31$$

That is, Wobete Ltd will have to deposit GH¢3,373,127.31 into the sinking fund at the end of each quarter.

**[Total redemption value = 2 marks; Interest factor = 1; Computation of instalment = 2; Final answer = 1]
(6 marks)**

c) Differences between Forwards and Futures Contract

- Forward contract are non-standardized but Futures contracts are standardized as to delivery date, quality and quantity
- Forward contracts are over the counter contracts but Futures contracts are traded on an organized exchange
- Forwards contract have no clearing houses but Futures contracts have clearing houses
- No margin requirement under Forward but margin requirement exist under Futures contract
- Credit risk is higher in Forward contracts but minimal on Futures contracts due to the margin requirements.

(Any 2 points @ 2.5 marks each =5 marks)

d)

i) 3 months Forward:

$$\text{Forward rate} = \frac{\text{spot rate} \times (1 + R_{\text{GH¢}} \times \text{days/day basis})}{(1 + R_{\text{USD}} \times \text{days/day basis})}$$

$$\text{Forward rate} = 5.4 \times \frac{(1 + 15\% \times 3 \text{ months}/12 \text{ months})}{(1 + 2\% \times 3 \text{ months}/12 \text{ months})}$$

$$\text{Forward rate} = 5.4 \times \frac{(1.0375)}{(1.005)}$$

$$= 5.4 \times 1.0323$$

$$= 5.574$$

(2.5 marks)

6 Months forward:

$$\text{Forward rate} = \frac{\text{spot rate} \times (1 + R_{\text{GH¢}} \times \text{days/day basis})}{(1 + R_{\text{USD}} \times \text{days/day basis})}$$

$$\text{Forward rate} = 5.4 \times \frac{(1 + 20\% \times 6 \text{ months}/12 \text{ months})}{(1 + 3\% \times 6 \text{ months}/12 \text{ months})}$$

$$\begin{aligned} \text{Forward rate} &= 5.4 \times \frac{(1.1)}{(1.015)} \\ &= 5.8522 \end{aligned}$$

(2.5 marks)

ALTERNATIVE (Assuming the interest rates were understood to be for the specific tenor and not per annum as question was silent)

ii) 3 months Forward:

$$\text{Forward rate} = \text{spot rate} \times \frac{(1 + R_{\text{GH¢}} \times \text{days/day basis})}{(1 + R_{\text{USD}} \times \text{days/day basis})}$$

$$\text{Forward rate} = 5.4 \times \frac{(1 + 15\%)}{(1 + 2\%)}$$

$$\begin{aligned} \text{Forward rate} &= 5.4 \times \frac{(1.15)}{(1.02)} \\ &= 5.4 \times 1.1274 \\ &= 6.088 \end{aligned}$$

(2.5 marks)

6 Months forward:

$$\text{Forward rate} = \text{spot rate} \times \frac{(1 + R_{\text{GH¢}} \times \text{days/day basis})}{(1 + R_{\text{USD}} \times \text{days/day basis})}$$

$$\text{Forward rate} = 5.4 \times \frac{(1 + 20\%)}{(1 + 3\%)}$$

$$\begin{aligned} \text{Forward rate} &= 5.4 \times \frac{(1.2)}{(1.03)} \\ &= 5.4 \times 1.1650 \\ &= 6.29 \end{aligned}$$

(2.5 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

- This question had a total of 20 marks covering (a) to (d)
- The (a) part was on an endowment fund with students expected to calculate the balance on the fund with an initial deposit to be invested for first three years at given interest rates for each of the 3 years carrying 4 marks. Those who understood the question got the maximum marks for determining the balance at the end of the 3 years. Some students deviated and scored very poor marks
- The (b) part was on bond issue and the establishment of sinking fund to accumulate enough funds for the redemption of the bond on maturity. Candidates were required to determine the even amount that should be put aside on quarterly basis to achieve this. This was poorly answered except few students who got it right and scored the maximum marks. This carried 6 marks
- The (c) part was on basic difference between a forward and futures contract. This part which contained 5 marks was generally well answered and attracted maximum marks
- The (d) aspect which was the calculation of basic forward for 3 months and 6 months tenors got some students struggling to calculate this. Some did well and scored the maximum marks. Those who assumed the interest rates quoted were for the specific tenors and not annual were also considered since the question was silent on that.
- On overall basis this was the worst answered question with less than 10% passing driven mainly by the poor performance in (a) and (b) parts of the question and to some extent the (d). The (d) had an overload of information not needed for the specific aspect the students were required to answer.

QUESTION FOUR

(a) Appraisal of Project-05

NPV of Project-05

Period	NCF	DF @ 25%	PV @ 25%	DF @ 35%	PV @ 35%
EOY 0	-34	1.0000	(34.00)	1.0000	(34.00)
EOY 1-5	13.5	2.6893	36.31	2.2200	29.97
EOY 5	10	0.3277	3.28	0.2230	2.23
NPV			5.58		(1.80)

IRR of Project-05

$$\text{IRR} = i_L + \left[\left(\frac{\text{NPV}_L}{\text{NPV}_L - \text{NPV}_H} \right) \times (i_H - i_L) \right]$$
$$\text{IRR} = 25\% + \left[\left(\frac{5.58}{5.58 + 1.80} \right) \times (35\% - 25\%) \right] = 32.56\%$$

Project-05 should be okayed for the next stage of the appraisal process as its NPV is positive and IRR is greater than the required rate of return.

[Marks allocation: NPV computation = 6 marks; IRR computation = 4 marks]

(b) Sensitivity of NPV of Project-05 to cost of plant and equipment

$$\text{Sensitivity \%} = \frac{\text{NPV}}{\text{PV of cost of plant and equipment}} \times 100\%$$

$$\text{Sensitivity \%} = \frac{28.54}{34} \times 100\% = 83.9\%$$

The cost of the plant and equipment will have to increase by 83.9% for the NPV of the project to become zero. This implies that the project will no longer be viable if the cost of equipment and plant increases by more than 83.9%.

[Marks allocation: Computation of sensitivity percentage = 4 marks; Interpretation = 1 mark]

ALTERNATIVE

$$\text{Sensitivity \%} = \frac{\text{NPV}}{\text{PV of cost of plant and equipment}} \times 100\%$$

$$\text{Sensitivity \%} = \frac{5.58}{34} \times 100\% = 16.41\%$$

[Marks allocation: Computation of sensitivity percentage = 4 marks;
Interpretation=1 mark]

(c) **Recommended portfolio of projects that should be funded in the coming year**
Computing the profitability index (PI) of the various projects and ranking them

Project	PI = NPV/Investment	Rank
PROJECT-01	2.0	3
PROJECT-02	3.0	2
PROJECT-03	3.9	1
PROJECT-04	1.7	4
PROJECT-05	0.2	6
PROJECT-06	0.4	5

Allocating available funds to the projects based on PI ranking

Rank	Project	Investment required	Allocation	NPV
1	PROJECT-03	9.0	9.0	35.0
2	PROJECT-02	15.0	15.0	45.0
3	PROJECT-01	25.0	25.0	50.0
4	PROJECT-04	12.0	12.0	20.0
5	PROJECT-06	5.0	1.0	0.4
6	PROJECT-05	34.0	0.0	0.0
Total		100.0	62.0	150.4

The recommended portfolio:

The company should fund projects 3, 2, 1, and 4 in full and fund 1/5 of project 6 for a combined NPV of GH¢150.4 million.

[Marks allocation: Profitability index and ranking = 3 marks; Recommended portfolio = 2 marks]

(Total: 20 marks)

EXAMINER'S COMMENTS

- Question four was on project appraisal. The (a) part required the computation of Net Present Value (NPV) and Internal Rate of Returns (IRR) for the project which carried 10 marks. This part received good answers from students and most students scored the maximum marks. Students generally were able to correctly compute the NPV and IRR.
- The (b) aspect which covered on sensitivities of the project to variations in the cost of plant and equipment also attracted some good answers with those students who understood scoring the maximum marks. This carried 5 marks.
- The final part of the question (c) was on project ranking and capital rationing. This part was also generally well understood and well answered.
- This question on overall basis was one of the best answered questions. It was the second best answered question with average 37% pass rate. The question however was loaded with a lot of information but that notwithstanding it got the best responses from students.

QUESTION FIVE

a)

i) *Aggressive working capital* refers to company using lower levels of cash, stocks and debtors relative to the high level of business activity. The working capital assets are over stretched to cover the high and growing volume of activity.

This sweats the assets better to create more profits but at the expense tight liquidity that might expose the company to liquidity risk. **(2 marks)**

ii) *Moderate working policy* is the middle ground between aggressive and conservative. It provides levels of working capital needed in line with the levels of business activity. It impacts moderates profits and also moderates the liquidity risk. **(2 marks)**

iii) *Conservative working capital policy* is where too much working assets are held relative to the low volume of business activity and could counter to profit generation but provides more than sufficient liquidity levels. **(2 marks)**

b)

(i) Old Credit Policy (4 weeks of credit)

Credit sales volume (Liters)		500,000,000	
Commission or margin per liter (0.2 cedis)	x	<u>0.2 cedis</u>	
		GH¢	
Total profit before interest and Bad debts		100,000,000	
Financing cost (50% x 250m x 25%)		(31,250,000)	
Bad Debts (0.01 cedis x 500m)		<u>(5,000,000)</u>	
Profit after Financing and Bad debts		<u>63,750,000</u>	(4 marks)

(ii) New Credit Policy (2 weeks of credit)

Credit sales volume (Liters) (75% of 500m)		375,000,000	
Commission or margin per liter (0.2 cedis)	x	<u>0.2 cedis</u>	
		GH¢	
Total profit before interest and Bad debts		75,000,000	
Financing cost (75% x 250m = 187.5m x 50% x 25%)		(23,437,500)	
Bad Debts (0.02 cedis x 375m)		<u>(7,500,000)</u>	
Profit after Financing and Bad debts		<u>44,062,500</u>	(4 marks)

(iii) Profit made under Old policy	63,750,000
Profit under new policy	<u>(44,062,500)</u>
Difference	<u>19,687,500</u>

Decision

Based on the analysis the new policy implemented resulted in profit reduction of GH¢19.68m and the new policy should therefore be reversed immediately.

(1 mark)

c)

i) Reasons for holding stock

- To cater for unexpected spike or increase in demand.
- To maintain existing and loyal customers as stock outs could drive away customers.
- For seasonality purposes for goods that experience spike in demand on seasonal basis.
- To manage the cost of ordering and take advantage of discounts on bulk orders.
- Avoid the cost of emergency orders due to stock outs.
- To ensure smooth flow of production process without any hitches.
- Information that market prices are likely to move up and therefore stocking to take advantage of the price increases when they occur to make profit and also preserve working capital.
- Information that there would be shortage of supply in the market.

(Any 2 points at 1 mark=2 marks)

ii) Cost of Holding stock

- The cost of storage of warehousing.
- Risk of expired and damaged goods.
- Fraud and pilfering risk.
- Stores administration cost.
- The cost of insurance.
- Opportunity cost of locked funds in stock.

(Any 3 points at 1 = 3 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

- The final question 5 was a combination of theory and quantitative covering (a) to (c).
- The (a) part was theory on aggressive, moderate and conservative working capital strategies and their implications on liquidity and profitability. This carried a total of 6 marks and averagely received good answers from students.
- The (b) aspect which carried 9 marks was on review of credit policy in the oil and gas industry which required students to calculate profits under an old policy, new policy and advise as to whether to revert to the old credit policy or maintain the new policy based on the results. The (b) (i) part which carried 4 marks was well answered followed by the (b) (ii) which also carried 4 marks and (b) (iii) carrying 1 mark
- The final aspect of the question was (c) was on the reasons for holding stock and the cost associated with holding stock. This was well answered by majority of students and carried 5 marks totalling 20 marks for the question.
- This was the best answered question with an average of 50% pass rate.