# Institute of Actuaries of India

## Subject SP5 –Investment and Finance

# March 2021 Examination

# EXAMINERS' REPORT

**Introduction**

The Examiners' Report is written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

**A. Pass Mark**

The pass mark for this exam was 50.
24 candidates appeared and 7 passed.

**Solution 1:**

**i) Active management styles**

The most common investment management styles are growth; value; momentum; contrarian and rotational. [0.5]

In growth or value styles, portfolio managers invest in growth stocks or value stocks, respectively. Growth stocks are stocks that are expected to experience rapid growth of earnings, dividends and hence price. Value stocks are those that appear good value in terms of certain accounting ratios, such as the price earnings ratio or book value per share. [1]

Growth / value factors are used to distinguish between growth and value stocks.
Few growth factors are sales growth; earnings growth; forecast earnings growth; return on equity; earnings revisions and few value factors are book to price; dividend yield; earnings yield; cashflow yield; sales to price. [2]

Momentum – purchasing (selling) those stocks which have recently risen(fallen) significantly in price on the belief that they will continue to rise(fall) owing to an upward (downward) shift in their demand curves. This approach aims to take advantage of momentum effects in investment markets. [1]

Contrarian – doing just the opposite to what most other investors are doing in the market in the belief that investors tend to overreact to news. The rationale for this approach is that whilst over the long term most shares will give an average performance, in the short-term markets tend to over-react to good and bad news. [1]
Rotational – moving between value and growth depending on which style is believed to be attractive at any particular point in time. [0.5]

This approach requires considerable skill in reading the market and be in

- growth stocks when the market is rising and investors are confident; and
- value stocks when the market is falling and investors are nervous. [0.5]

Value stocks are seen to have more asset backing and higher cash flow and therefore will be a safer bet. [0.5]

**[Max 5]**

**ii) Estimation of RAROC**

As per CAPM, the RAROC should be equal to the risk-free rate. If capital assets are correctly valued, then returns in excess of the risk-free rate will come only from taking risk. [0.5]

The RAROC is the actual return reduced by β (market return – risk free rate) where return = Profits /Capital and β=beta of the company [0.5]

Generally, a high actual return on capital using normal accounting measures would imply the successful creation of intangible assets or goodwill and shareholder value. The company would therefore be an attractive investment proposition. [0.5]

Using appropriate β is difficult as beta estimated from past data will be subject to the usual problems of statistical inference – *e.g.,* choice of time period, random variation, *etc.* When assessing projected returns, we need forward-looking estimates of beta, which are always subjective. [1]

Acquiring a new customer or client would be a balance sheet event as an internally generated goodwill asset would have been created. However, the increment to value would not be part of the return. The value attributed to such assets is just the number which, given the future incremental cashflow from the new customer, makes the risk-adjusted return on capital going forward equal to the risk-free rate. [1]

Ultimately, the best measure of the capital in a company, including all intangibles as required by the CAPM, probably is the market capitalization itself. [0.5]

The return part of the calculation also has to be adjusted from the starting point of accounting profits. [0.5]

For example, advertising expenditure, which is shown as expense in accounts, will in part have to be treated as investment expenditure and added back to profits to calculate the return. Only the expenditure necessary to defend existing goodwill should be charged to profits. Similar comments apply to investment in tangible assets. [1]
Sometimes internally generated goodwill is recognized in accounts automatically. For example, if a property company lets a hitherto vacant building, then the increment to value is recognized next time when the building is revalued. For a listed property company this may, depending on the listing authority, be every year. [1]

In summary, when calculating capital include and value:

- goodwill from mergers/takeovers
- internally generated goodwill
- any other intangible assets
- all tangible assets

[1]

When calculating return:

- add back to profits any investment in the creation of new intangible assets and in the expansion and purchase of tangible assets.
- continue to deduct any expenses incurred defending and servicing existing tangible and intangible assets. [1]

**[Max 6]**

**iii) Merits and demerits of the special formula**

The formula identifies companies that are

- under-valued, as we are looking at low P/E [0.5]
- of high quality, generating more returns for given capital (assets), as we are looking at high RAROC [0.5]

However, the formula considers only earnings/profits of last 12 months, which may not be characteristic of the company going forward. Earnings / Profits might be higher / lower in last year due to one off events e.g., bankruptcy of competitor or compliance of new regulations. [1]

Calculation of P/E may be easy or readily available from company accounts, but RAROC calculation is overly complex process… [0.5]
…estimating capital from historical transactions to include all intangibles [0.5]
…and calculating for all listed stocks may be time consuming [0.5]

Moreover, the formula may sometimes indicate investing in exceedingly small cap companies that have

- availability issue: free-float capital is too low to invest full portfolio [0.5]
- liquidity issue: trading volumes are low with remarkably high bid-offer spreads [0.5]

Buy / sell once a year at single point in time may lead to timing risk. For example, capital losses may occur at the end of the year if market as a whole was at peaks while purchasing and at lows while selling. This may happen even though the formula generates higher returns (say -5%) than the market index (say -9%). [1]

**[Max 4]**

**iv) Ways to improve the special formula**

We may consider average earnings/profits over past few years or use projected earnings/profits for the coming year in calculating P/E and RAROC. [2]

Instead of RAROC use Return on Assets (ROA) = $\frac{EBI}{D+E}$ where EBI is earnings before interest and D = debt; E = equity; readily available from company accounts. [1]

Consider only companies with some minimum market cap to reduce availability issues. [1]
Consider only companies up to some maximum bid-offer spread or minimum average daily trading volumes to reduce liquidity issues. [1]

Screening the investible universe using above two criteria will leave us with fewer listed stocks to consider and reduces the number of calculations. [1]

To reduce timing risk, use techniques similar to SIPs (systematic Investment Plans); spread the purchases throughout the year say monthly one stock or quarterly two or three stocks with holding period of one year for every stock. This will average out both buy / sell of stocks at different market levels.

[2]

**[Max 6]**

**[21 Marks]**

*Part (i) As expected in case of bookwork, this part was answered very well and many candidates scored full marks.*

*Part (ii) Though a bookwork, this part was less well answered by most candidates, seemingly misunderstood the question on RAROC of a company with other risk adjusted portfolio performance measures.*

*Parts (iii) and (iv) had concentrated on application or higher skills, and required candidates to apply their knowledge of portfolio management and general understanding of investment markets. These parts were open-ended type questions with a considerable number of marks being available where candidates could have come up with much variety of points. Few strong candidates who wrote other valid points not given in the indicative solutions were given credit like limit on number of stock picking from a single sector to achieve diversification; inclusion of other metrics for ranking etc. Overall, not well answered by most candidates and marks for these parts were disappointing.*

**Solution 2:**

**i) Chain linking**

Chain linking is the method by which the constant or divisor in the weighted arithmetic index formula is adjusted each time a change occurs to the capital components of the index, which does not arise through investment performance. [1]

By chain linking, the performance of the index will be unaffected by the change of components and therefore only reflect the actual growth in value of the underlying constituent assets. [1]

**[2]**

**ii) Examples of chain linking a bond index**

Shortener – when a bond drops out of the index because its maturity has become too short [0.5]

Slider – when a double dated bond drops out of or enters the index and has become longer or shorter due to a change in market yields. [0.5]

**[1]**

**iii) Index value calculation**

At the beginning of first month

$$Base\ value\ or\ divisor\ = \frac{sum\ of\ market\ cap\ of\ all\ constituents}{Index\ value}$$ [0.5]

$$\frac{1000\ (1000)+\ 2000\ (200)+\ 3000\ (30)}{3000} = 496.67$$ [1]

At the end of first month

$$Index\ value\ = \frac{sum\ of\ market\ cap\ of\ all\ constituents}{divisor}$$ [0.5]

$$\frac{1000\ (1200)+\ 2000\ (180)+\ 3000\ (10)}{496.67} = 3{,}201.34$$ [1]

Assumptions:

- ITCO buyback of 200 shares is done at month end market price. Hence, remaining 800 shares price does not change. [0.5]
- RETAILCO bonus shares issue does not affect market cap. Price is equal to the theoretical price$\left(120 = \frac{2000\ (180)}{3000}\right)$ [0.5]

New base value or divisor:

$$\frac{800\ (1200)+\ 3000\ (120)+\ 2000\ (20)}{3201.34} = 424.82$$ [1]

At the end of second month

$$Index\ value\ = \frac{800\ (1250)+\ 3000\ (110)+\ 2000\ (25)}{424.82} = 3{,}248.42$$ [1]

**[6]**

**[9 Marks]**

*Part (i) As expected in case of bookwork, this part was answered reasonably well and many candidates scored full marks. About a third of candidates did not attempt this part.*

*Part (ii) Few candidates who paid attention to the details in the question scored full marks. In this part, question clearly stated no new bond issues and redemptions but many candidates wrote them in their answer and scored nothing.*

*Part (iii) This part was less well answered and those candidates who wrote down what they were calculating, stating assumptions/method used, often avoided scoring nothing when they made a mistake in the calculation.*

**Solution 3:**

**i) ALM modeling**

ALM modeling involves projections of assets & liabilities and of related characteristics such as ruin probabilities and solvency levels over periods of several years. [0.5]

In setting an investment strategy to control the risk of failing to meet the objectives, ALM should consider the variation in the assets simultaneously with the variation in the liabilities. [0.5]

Interest rates act as the linkage between assets and liabilities. Interest rate generators and cascading sets of stochastic differential equations are used in insurers' ALM models. [0.5]

Risk measures like value at risk (VaR) or expected policyholder deficit or a conditional tail expectation (CTE) can be used to analyze capital requirements, capital allocation, reinsurance and asset allocation. [0.5]

Typically, general insurance cover liability to third parties, property damage, financial loss (pecuniary loss, fidelity guarantee and business interruption cover) and fixed benefits arising under personal accident and sometimes health insurance. [0.5]

Estimating the components of claims reserves include outstanding reported claims, claims incurred but not reported (IBNR), reopened claims and claims handling expenses. [0.5]

In estimating emerging liability, with claims inflation, run-off triangles provide a method of tabulating claims data and studying the underlying statistical model. [0.5]
The surplus of a general insurer at future times can be modeled using aggregate claims process models, which can be used to find the probability of ruin over a finite or infinite time horizon. [0.5]

Stages in an ALM exercise in developing an investment strategy are:

- Specifying key objectives
- Agreeing on suitable assumptions
- Collect liabilities data at policy level
- Consider nature of the liabilities in analysis of current surplus and cash flow projections
- Investigate how the surplus might progress in the future for different investment strategies
- Analyze different asset mixes in more detail to assess the risks (relative to the liabilities) and the rewards of each alternative under consideration
- Finally, summarize and present results–in graphic/table format

[2]

ALM model may use scenario testing (deterministic) or stochastic simulations from either an accounting (statutory earnings) perspective or a best estimate cash flow perspective. [1]

Where insurer has decided to not fully hedge the assets and liabilities the results often show a range of outcomes (e.g., solvency levels) based on different economic scenarios. [0.5]

ALM results resemble an expanding “funnel of doubt” and the uncertainty associated with the output variables increase, as projections are made further into the future. Hence, ALM models are essentially a qualitative method for explaining risks. [1]

For strategies that are designed to hedge the liabilities, either partially or fully, the funnel of doubt is narrower than an investment strategy that has significant mismatch between the assets and liabilities.
[0.5]

The ruin probabilities cannot be translated directly into assessments of the value of different strategies except by using the concept of “risk-neutral probabilities” or by adopting deflator (stochastic discounting) methodologies. [0.5]

Historically, ALM models were used to set an investment strategy following one of the two techniques:

- a benchmark consisting of specific (fixed) percentages allocated to each asset class which the investment manager is expected to follow (within suitable ranges), or [0.5]
- extraction of a “core” portfolio, typically of bonds, with the remaining assets invested in a “balanced” fashion. [0.5]

Early ALM studies focused on duration analysis. Several characteristics (like short term) of general insurer’s reserves made duration analysis of only marginal relevance. Recent actuarial studies have used dynamic financial analysis in ALM models. [0.5]

Fixed-income securities can be used to back reserves and equities to back policyholders' surplus. [0.5]

Considering the high retention rates for motor policies, we could quantify effective duration using a multi-period approach. Effective duration measures for reserves are typically below their modified duration counterparts. [1]

Differences between benefit event date and payment date will attract effects of inflation. The inflation sensitivity of reserves renders the traditional duration analysis improper. Therefore, reserves should be inflation-sensitive through the payment date; assuming a constant spread between long-term interest rates and inflation rates. [1]

Traditional asset-liability matching would require a portfolio of cash equivalents and other short-term securities for the inflation sensitive short duration reserves. An upward sloping yield curve renders such strategies sub-optimal / unappealing. Hence, many insurers have deliberately mismatched by investing in long-duration fixed-income securities. [1]

As insurers are taxable, ALM is affected by the tax treatment of different securities. We have to analyze the optimal mix of taxable vs. tax-exempt bonds. [0.5]

Equity Duration: Some view equities like fixed income perpetuities with a duration of 1/d (d = dividend yield), giving extremely long durations. Considering the inflation sensitivity of dividends, equities duration is reduced. [0.5]

The statutory accounting valuation of bonds at amortized value and equities at market value has led to an overemphasis by insurers in bonds. Hence, insurers should invest more in equities. [0.5]

We need to take account of the full range of possible financial outcomes associated with each strategy. For example, ALM results may suggest that Investment Strategy A (high equity proportion) yields a higher ruin probability than Investment Strategy B (low equity proportion), it does not necessarily follow that A should be rejected in favor of B as Strategy A might also lead to a higher average surplus than B. [1]

**[Max 12]**

**ii)** Modern Portfolio Theory

In ALM models of a general insurer, Modern Portfolio Theory can be used to determine efficient investment strategies. The investment portfolios are replaced by management strategies for both investment and insurance operations. [0.5]

The variance and standard deviation measures of risk can be replaced by a variety of cash flow and statutory accounting metrics. [0.5]

An asset liability efficient frontier is made as the locus of management strategies that maximize some accounting metric for a given level of risk or minimize the risk for a given accounting metric. [1]

The accounting metric is generally surplus growth or pretax operating income; and the risk measure is generally probability of ruin or VaR or expected policyholder deficit (EPD). [1]

However, sampling error may degrade the ability to effectively distinguish optimal and no optimal points in risk-return space. [1]

**[Max 3]**

**iii)** Monitoring and controlling liquidity risk.

Liquidity risk is the risk that cashflows from assets are insufficient to meet liabilities in all future periods. The focus is on cash, which is a different from solvency test. [0.5]

For a general insurer, liquidity risk is the risk of not being able to raise funds (by borrowing or sale of assets) at a reasonable cost at all times and, therefore, the risk that a market does not have the capacity to handle the volume of desired transactions when needed. [0.5]

Techniques that can be used for identifying and measuring liquidity risk include the cash budgeting / short-term financial planning, liquidity gap and duration analysis. [0.5]

Liquidity gap or net liquid assets are defined as the difference between the level of liquid assets and volatile liabilities. All assets are allocated to one of two categories - liquid or illiquid. All liabilities are classified as either stable or volatile. [1]
A six-month remaining maturity criterion is usually adopted in classifying assets and liabilities. [0.5]

In analyzing the net liquid assets position, allowance should be made for the liquidation costs associated with converting items to cash. [0.5]

The liquidity gap approach does not quantify the potential cost or impact of such a gap under stressing situations such as an increase in the cost of finance. [0.5]

Duration analysis: A more rigorous approach involves the concept of liquidity duration or liquidity risk elasticity (LRE), where the impact of changes in market conditions is considered. [0.5]

The process consists of two steps:

- Calculate the present value of assets and liabilities using the "cost of funds" rate as the discount rate [0.5]
- Measure the change in the market value of the institution's equity (LRE)from a change in the cost of funds (due to an increase in the risk premium paid to raise money). [0.5]

If the duration of the assets is longer than that of the liabilities, the LRE will be negative. This is because the value of assets will decrease more than the value of the liabilities following an increase in interest rate. Increases in interest rates will pose liquidity problems under stress situations where the cost of finance is high. [1]

The cost of not maintaining sufficient liquidity is excessive cost of raising funds when forced to borrow. Such situation may arise when there are huge catastrophe claims. [1]

To reduce exposure to liquidity risk:

- increase the funds held in cash and readily marketable assets such as government securities, and/or [0.5]
- increase the term of liabilities by writing more new business especially from long tail line of businesses and/or longer-term policies. [1]

**[Max 5]**

**[20 Marks]**

*Part (i) This part was answered reasonably well and most candidates mentioned points from relevant core reading. This question had less of a knowledge bias and concentrated on application or higher skills. Those candidates who were prepared did well by relating the points from relevant core reading to the General Insurance Company context. This was a straightforward question with a considerable number of marks being available.*

*Part (ii) This part was less well answered and many candidates did not attempt this part. Few candidates just mentioned points from core reading on MPT and didn't related them to General Insurance Company context.*

*Part (iii) This part was answered reasonably well. This straightforward question should have been easy to relate liquidity risk points to General Insurance Company context. But, most candidates just mentioned points from relevant core reading.*

**Solution 4:**

**i)** The one year forward exchange rate = 90 x exp (5%-2%) = 92.74 [1]

**ii)** Borrow 1 crore GBP at 2% per annum for 1 year. [0.5]
Then convert this to INR which would be equal to INR 90 crore. [0.5]
Invest it at the rate of 5% for 1 year. [0.5]

Enter into one year forward contract to buy 1.0202 crore GBP [1 crore × exp (0.02)] for INR 86.72 crore. [0.5]

After 1 year, the investment proceeds would be INR 94.61 crore.
Of this, use INR 86.72 crore to buy 1.0202 crore GBP [1 crore × exp (0.02)] under the term of the forward contract. This is enough to pay the principal 1 crore GBP and interest at 2% per annum with continuous compounding.

The remaining INR 7.89 crore is arbitrage profit. [1]

*(Note: Derivation of arbitrage profits can be in either currency i.e., GBP or INR.)*

**[3]**

**iii)** Borrow 90 crore INR at 5% per annum for 1 year. [0.5]
Then convert this to GBP which would be equal to 1 crore GBP. [0.5]
Invest it at the rate of 2% for 1 year. [0.5]

Enter into a one year forward contract to buy INR 94.61 crore for 0.9959 crore GBP [0.5]

After 1 year, the investment proceeds of 1 crore GBP would be 1.0202 crore GBP.

Of this, use 0.9959 crore GBP to buy INR 94.61 crore under the term of the forward contract. This is enough to pay the principal INR 90 crore and interest at 5% per annum with continuous compounding.

The remaining 1.0202 – 0.9959 = 0.0243 crore GBP is arbitrage profit. [1]

*(Note: Derivation of arbitrage profits can be in either currency i.e., GBP or INR.)*

**[3]**

**iv)** Borrow 90 crore INR at 5% per annum for 1 year.

| Time | Cash flow on INR bond (INR) | PV (INR) | Cash flow on GBP bond (GBP) | PV (GBP) |
|---|---|---|---|---|
| 1 | 6 | 5.7074 | -0.03 | -0.0294 |
| 2 | 6 | 5.4290 | -0.03 | -0.0288 |
| 3 | 6 | 5.1642 | -0.03 | -0.0283 |
| 4 | 6 | 4.9124 | -0.03 | -0.0277 |
| 4 | 100 | 81.8731 | -1 | -0.9231 |
| Total | | 103.0861 | | -1.0373 |

Value of the swap = 103.0861/90 – 1.0373 = 0.1081 crore GBP

*(Value of swap can also be derived in terms of INR)*

[1 mark for each correct column and 1 mark for correct calculation of value of swap]

**[Max 5]**

**v)** By using currency forward, investor can lock into an exchange rate today.

The ability to use forwards and other instruments to hedge currencies allows the fund manager of an institutional investor to separate the decision to invest in a country from a decision to invest in the currency.

The main problem with using forward contracts to hedge returns from overseas investments for long-term investors is the fact that many investments are of a longer term than the contracts available in the market. The forward contracts will therefore have to be rolled over on expiry at an unknown rate.

A further difficulty is the costs associated with the forward contracts. Although dealing costs are low, particularly on the major currencies, they may be significant when attempting to hedge smaller amounts, for example dividend receipts.

This removes the possibility that an appreciation of the foreign currency will increase the domestic currency value of the expected proceeds.

[1 mark for each point]

**[Max 5]**

**[17 Marks]**

*Part (i) This part was answered well by better prepared candidates.*

*Part (ii) This part was answered reasonably well. Some candidates explained the steps clearly and scored well.*

*Part (iii) This part was answered reasonably well. Some candidates explained the steps clearly and scored well.*

*Part (iv) This part was reasonably answered by better prepared candidates.*

*Part (v) This part was answered reasonably well. Those candidates who were better prepared scored well by relating the points from relevant core reading*

**Solution 5:**

**i) Unregulated markets**

It has been argued that the costs of regulation in some markets, especially those where only professionals operate, outweigh the benefits. Consequently, for wholesale markets, in which the parties involved are sufficiently well-informed, the best option may involve no specific regulations.

**Voluntary codes of conduct**

These operate effectively in many circumstances but are vulnerable to a lack of public confidence or to a few "rogue" operators refusing to co-operate, leading to a breakdown of the system.

**Self-regulation**

A self-regulatory system is organized and operated by the participants in a particular market without government intervention. The incentive to do so is the fact that regulation is an economic good that consumers

of financial services are willing to pay for and which will benefit all participants. An alternative incentives the threat by government to impose statutory regulation if a satisfactory self regulatory system is not implemented.

**Statutory regulation**

In statutory regulation the government sets out the rules and polices them.

The advantage is that it should be less open to abuse than the alternatives and may command a higher degree of public confidence.

**Mixed regimes**

In practice many regulatory regimes are a mixture of all of the systems described above, with codes of practice, self-regulation, and statutory regulation all operating in parallel.

[1 mark for each point]
**[Max 5]**

**ii) Classical**
In the classical system of corporation tax, company profits are taxed twice: once in the hands of the company and once in the hands of the investor. [1]

**Split-rate**

The split-rate system is similar to the classical system but different rates are levied on distributed profits and retained profits. [1]

**Imputation**

In the imputation system the company has to deduct some of the tax payable by investors on distributions and pay it directly to the government. This amount can then be set off against the total corporation tax bill of the company. [1]
**[3]**

**iii)** Long-term financial planning would typically look for next 3 to 5 years. [1]
Projection of future cash flows would involve estimation of the expected number of diners and takeaways and the corresponding amount of sale over the planning horizon. The associated input costs along with wages would also be projected. [1]

Any proposed development plans and the associated financing needs and its cost to be factored. [1]

Sensitivity analysis would be helpful in order to understand possible changes in the financial environment.
[1]
**[Max 3]**

**iv)**

a) Regret aversion [1]
Your friend has avoided making a decision which may lead him to regret later. [1]

b) Hindsight bias [1]
The coach is commenting after the results of that goal attempt. He is re-assessing the zero-goal and providing a justification for no goal scored. [1]

c) Overconfidence [1]

The dance students are overconfident of their skills. [1]

**[6]**

**[17 Marks]**

*Part (i) This part was answered reasonably well. Those candidates who were better prepared scored well by relating the points from relevant core reading*

*Part (ii) This part was answered very well by most of the candidates.*

*Part (iii) Few candidates scored good in this part. Most candidates failed to structure their answer well.*

*Part (iv) Most of the candidates did well in this part.*

**Solution 6:**

**i)** The study of the economic and financial factors affecting a company's share price is known as fundamental analysis. [1]

More specifically, fundamental share analysis is sometimes defined as the analysis of a company's share value and potential for future profit and dividends, based on accounting and economic information. It is based upon the idea that every share (and the market as a whole) has an intrinsic, fundamental, or true value, which the investor can estimate. [1]

The process can be considered as consisting of two stages:

- The construction of a model of the company which allows future cash flows and earnings to be estimated.
- The use of the output from the first stage to determine whether the company's securities are over- or under-valued by the market. [1]

We need to have a good understanding of this company's operations and business model. This would help in identifying the key factors driving the profits of this company. [1]

A cashflow model would be prepared to examine the impact of various economic scenarios on company's profits. [1]

Future sales and costs for the company would need to be forecasted. This would require building in the expected growth of the Company given the economic environment and the inflation in the cost. [1]

Profit and loss accounts for future years can then be drawn up. [1]

Ability of management to produce consistent growth and profit would have a significant bearing on the price of the stock. [1]

Quality of solutions offered by this company, user experience and the service standards would also play a significant role in future business being sourced by this Company and thus would impact future growth prospects. [1]

The market prospects for the future growth of this company and the level of competition in this industry would also have bearing on the value of stock. [1]

The company is in operation for 7 years and has been profitable for last 5 years. This may imply that it has carved a place for itself in this industry. However, a new entrant with better user experience may pose a tough competition. [1]

The past performance of the company may act as a guide for future performance. If the profit has been steady and growing, then it would induce confidence in investors. [1]

The retained profit for growth of the company. It is given that the company has been declaring increasing level of dividends. This may imply that the management is confident of future growth prospects. [1]

In order to form a view on the above factors, we would investigate:

- the financial accounts and accounting ratios
- dividend and earnings cover
- profit variability and growth (by looking at all sources of revenue and expenditure) – profit is a relatively small number calculated as the difference between two larger numbers and so can vary greatly
- the level of borrowing
- the level of liquidity
- growth in asset values
- comparative figures for other similar companies [2]

All the available sources of information can be used. The primary source is likely to be the company's published accounts but there are many other sources of information which include:

- the financial press and other commercial information providers
- the trade press
- public statements by the company
- the exchange where the securities are listed
- visits to the company
- discussions with company management
- discussions with competitors
- stockbrokers' publications
- credit ratings if they are available. [2]

Estimates of future earnings and other relevant factors obtained can be used to calculate a value for the shares using methods such as the discounted dividend model or a comparison of price earnings ratios. [1]

**[Max 12]**

**ii)**

- Incorporating ESG factors can improve investment performance through increasing returns and/or reducing risk.
- In case the company is not following ESG models then there may be high reputational risk associated with its operations which may cause irreparable reputation loss thereby impacting the financial performance even though the company is currently performing better than the market.
- Investing in ESG models may limit downside risk - In today's world a company doing well in financial parameters but not aligned to ESG model carries the risk that its misdeeds may be caught by the customers. This may lead to boycott of company's products.
- Investments in ESG factors can enhance shareholder value through reduced input cost on account of using renewable source of energy, say solar energy.

[1 mark for each point]

[4]

**[16 Marks]**

*Part (i) Most of the candidates did reasonably well in this part. Better prepared candidates covered wide range of points and scored good in this part.*

*Part (ii) Few candidates related the points well from the core-reading and did well in this part.*

**Additional Comments**

1. *For questions having less of a knowledge bias and concentrated on application or higher skills, generally a half or one mark was credited for mentioning each point from relevant core reading and another half or one mark was credited for relating that point from relevant core reading to the context given in the question.*

2. *Any mistake or incorrect calculation is penalized only once and was not penalized again in subsequent parts if the incorrect values are used in next steps, which are logically correct.*

3. *Any reasonable comments or appropriate conclusions drawn were given full credit that is based on incorrect values calculated in previous part(s).*

4. *Generally, for any question requiring calculations, around 70% marks of that question is allotted for correct method demonstrated in the answer and remaining for numerical accuracy of the answer. Hence, candidates should mention what they are calculating, stating assumptions/method used to gain method marks even though they make mistakes in the calculations.*

5. *Any alternative method used other than that provided in the indicative solution is acceptable and given full credit, as long as candidates state properly the assumptions used and apply the method consistently in all calculations.*

**********