INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

3rd December 2022

Subject SP5 – Investment and Finance

Time allowed: 3 Hours 15 Minutes (10.15 – 13.30 Hours)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. ***Please read the instructions inside the cover page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception.***
2. ***The answers are not expected to be any country or jurisdiction specific. However, if Examples/illustrations are required for any answer, the country or jurisdiction from which they are drawn should be mentioned.***
3. ***Attempt all questions beginning your answer to each question on a separate sheet.***
4. ***Mark allocations are shown in brackets.***
5. ***Please check if you have received complete Question Paper and no page is missing. If so, kindly get new set of Question Paper from the Invigilator.***

AT THE END OF THE EXAMINATION

Please return your answer book and this question paper to the supervisor separately. You are not allowed to carry the question paper in any form with you.

Q. 1) The central bank of a developing nation is discussing various measures to influence and regulate the domestic economic activity with the Government.

i) Describe how a hike in interest rates is likely to affect the economy. (5)

ii) List the principal aims of Regulation. (2)

Various investors in leading financial services companies have expressed reservations about an emphasis on ESG (Environmental Social Governance), as it could harm investment performance.

iii) Explain how ESG factors can improve the performance of investments. (4)

A multinational construction firm has agreed with the Government to construct a metro rail network in the capital city. The investment will be financed as an infrastructure project. The construction firm will supply and operate the metro trains and complete the construction in ten years at a cost of 100 billion of the local currency ("LCU"). The company is responsible for 100% of the operating and maintenance costs and will receive 85% of the revenues from the metro network. The Government (Local/Central/City) will share the remaining 15% of the revenues.

iv) Describe the main risks that the construction firm faces in undertaking this project. (10)

[21]

Q. 2) You have recently been hired as the Chief Investment Officer for a large insurance company. The CEO has asked you to consider making significant changes to the strategic asset allocation of the company.

i) List the key issues when making changes to the asset allocation. (4)

The CEO has also asked for you to increase the allocation to public share offerings and train the Finance and Investment departments to think of new ways to value the price of any potential investments.

ii) As part of the training, list the information that you will advise the team to request, before they value any company. (5)

iii) Describe the process by which you will ask the team to determine the price range of any share offer. (7)

iv) Explain why you might advise your team to recommend a price different from the fair market price based on any financial models. (3)

[19]

Q. 3) You are a non-executive director on the remuneration committee of Sporting Inc. Sporting Inc. started out providing equipment and sportswear for athletes, but in recent years the company has expanded rapidly to now offer a wide range of services such as management of professional sportspersons and organising tournaments.

The executives' earnings include share options linked with sales volumes. You have been approached to consider other options for incentives, such as bonuses related to profits or risk-adjusted return on capital.

Explain how you would consider these options and make changes if necessary. **[10]**

Q. 4) ABC is a fund management company which currently operates an investment fund investing into equity and bonds. The company is planning to launch a new fund which introduces investment into two new asset classes crypto assets and private equity.

i) Describe the main types of financial risks to which ABC would be exposed to under the new fund. (5)

ii) Also, describe how ABC can monitor and control the fund's risks, as described in part (i). (5)

[10]

Q. 5) The equity markets in India have witnessed very high volatility during the last two year with the following sequence of events taking place:

- 40% fall in equity markets at the onset of Covid-19 in March 2020.
- 120% recovery from the March 2020 lows as of September 2022.

i) Describe these events in relation to theories and biases covered under behavioural finance. (7)

ii) Explain why herding is a concern for financial markets. (3)

[10]

Q. 6) XYZ is an established insurance company and is launching a new single premium pension product which offers the policy holder an immediate annuity payable annually till the time the annuitant is alive. The annuity payments increase at a guaranteed rate of 3% annually. On death of the annuitant, the payments would cease.

The assets for this product are majorly invested in index linked Government securities and corporate bonds to meet the liabilities.

i) An analyst has suggested that the product is exposed to significant interest rate risk. Comment on this. (4)

ii) Discuss the use of swaps to hedge the payments from the products. (3)

iii) Express how would you model the asset liability mismatch reserve for the above product. (7)

[14]

Q. 7)

i) A bond investor is considering switching between the following two bonds:

- 10-year 5% G-Sec, Maturing on September 2030, Price =105, GRY = 7.8%
- 10-year 4.8% G-Sec, Maturing on April 2030, Price = 95, GRY = 8.6%

Describe the type of switch the investor is undertaking and investigations that the investor may make before undertaking this switch. (4)

ii) The investor is also considering another switch between the following bonds:

- Switch from 10-year 5% G-Sec maturing on September 2030, Price =105, GRY = 7.8%
- Into 20-year G-Sec 4.5% G-Sec maturing on July 2040, Price = 96, GRY = 9.1%

Describe the type of switch the investor is undertaking and the reasons why this investor may be considering this switch? (4)

iii) Explain the advantages and disadvantages of passive management for a bond portfolio compared to active management. (3)

An insurance company has acquired a large annuity business and is reviewing the investment policy for the bond portfolio that backs these annuity policies.

iv) Discuss whether the insurance company should adopt an active or passive management approach to manage the bond portfolio. (5)
[16]

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