INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

16th November 2011

Subject SA6 – Investment

Time allowed: Three hours (9.45* - 13.00 Hrs)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. *Please read the instructions on the front page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception*

2. ** You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*

3. *You must not start writing your answers in the answer sheet until instructed to do so by the supervisor*

4. *The answers are expected to be India Specific application for the syllabus and corresponding core reading. However, substantially the core reading material is still taken from material supplied by Actuarial Education Company which are meant for UK Fellowship examination. The core reading also contains some material which is India Specific, mostly the IRDA regulation. In view of this, it should be noted that focal point of answers is expected to be India Specific application. However if application specific to any other country is quoted in the answer the same should answer the question with reference to Indian environment.*

5. *Attempt all questions, beginning your answer to each question on a separate sheet.*

6. *Mark allocations are shown in brackets.*

7. *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.

Q. 1) You work for a Mutual fund (AMC) and are a part of a core team which is responsible for managing the assets of the fund. Your mutual fund has various types of fund offerings including Large Cap Equity funds, Mid-Cap Equity funds, Index Fund based on Nifty and Debt funds.

You have been reading a lot on the markets and indicators which can give you a better understanding of where the markets are headed. Currently you are considering to choose stocks for your Mid-Cap fund and you feel liquidity is a very important criterion for choosing your stocks amongst the many mid and small sized companies available.

1. Why would market place a premium on the stocks which are highly liquid? (3)

2. How do you evaluate liquidity i.e. what indicator would you look at for comparing liquidity of various stocks which you want to buy in your Mid-Cap fund? (3)

3. You are anticipating a bull market in the near short term. Your research team has recommended to include two stocks in your portfolio which will do well in the rising market. You find that both the companies are equally good in terms of earnings capability, growth and management. However you find that in one company the promoters and group companies hold close to 75% of the total shares whereas the other one is more widely held by the public and has less of promoter holding. Which one of the two stocks you would prefer to add to your portfolio given that you want to make some gains from the anticipated price rise in the coming months? (3)

4. You are explaining a junior analyst in your team how to use the advance- decline statistics to create a view on the future market movement. You believe technical analysis is not purely redundant and you plan to demonstrate how to use past market data to draw inferences. You have asked him to prepare the data on the number of stocks that have advanced or declined or remained unchanged along with the volumes of stocks (number of traded shares in each category of advance or decline) at 3 different time points as given by you.

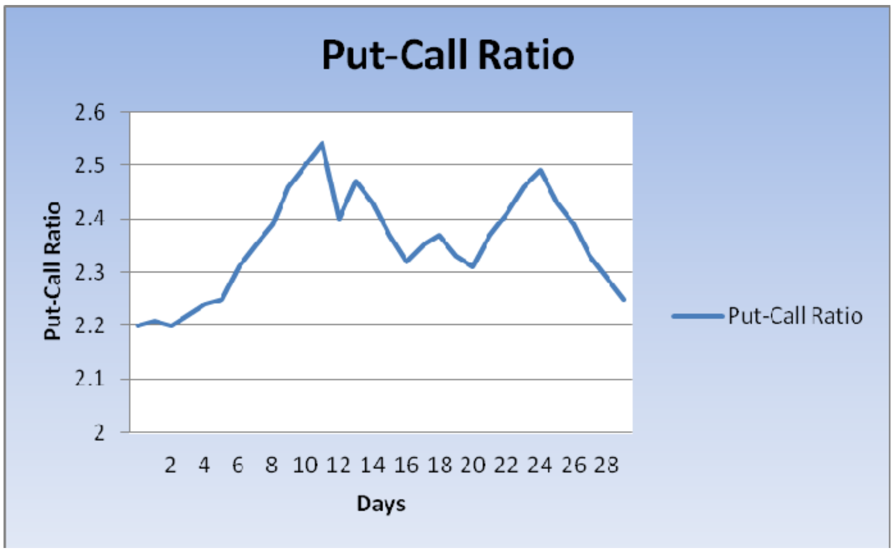
The analyst has prepared and submitted the following table summarising the past market data on advances and declines on National Stock Exchange at the 3 different time points as requested. In all the 3 different situations at different time points as per the table below please explain as to whether market is expected to go up (bullish) or go down (bearish) or remain neutral.

	1st Timepoint		**2nd Timepoint**		**3rd Timepoint**	
	Number of Stocks	**Total Volumes (in lacs)**	**Number of Stocks**	**Total Volumes (in lacs)**	**Number of Stocks**	**Total Volumes (in lacs)**
Advances	495	512	721	706	1104	1119
Decline	906	1000	675	1355	355	167
Unchanged	77		82		19	
Total	1478		1478		1478	

a. Does advance decline numbers or Advance/Decline ratio indicate anything about market sentiments and do they indicate anything about future market movements? (3)

b. How can the number of advancing/declining stocks along with the volumes flowing in such stocks be used together to assess the market sentiments? From the above table please suggest what is the market sentiment in all the three situations provided to you. (5)

5. Given below are the values of the Put-Call ratio over the last 30 trading days.



Please explain what is a Put-Call Ratio? Discuss the utility of calculating the Put-Call ratio and based on the chart above state the inferences which can be drawn about the market sentiments and expected market movements. (6)

6. Many of your colleagues at the Mutual Fund believe in the Efficient Market Hypothesis according to which outperformance of stock market on a consistent basis is not possible on the basis of past data/ information and market price reflects all available and known information. With Indian market becoming more efficient day by day your Mutual Fund (AMC) believes that Index Funds as underlying may serve the needs of Investors better and hence they want to launch a few ETFs.

a. What is the difference between an Index Fund offered by a mutual fund and an Exchange Traded Fund [ETF]? (4)

b. Why would some investors choose to invest in your Index fund and not in the Large Cap Equity Fund actively managed by your company? (3)

c. What is meant by tracking error? Why does a tracking error happen? (5)

d. If efficient market hypothesis makes it clear that market (index) returns cannot be outperformed then why do so many investors still choose Actively Managed Funds? (3)

7. An analyst in you firm has been reading about credit derivative instruments and is intrigued by the Credit Default Swaps. He wants to understand

a. Why these instruments got created i.e. what purpose they serve? (3)

b. What are the salient characteristics of this instrument with an example? (6)

c. Why are CDS considered to have a domino effect (large magnifying impact) in terms of losses in the event of a credit default. Please explain. (3)

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Q. 2) You work in the investment department of an investment bank and a new sales manager wishes to consider various products that the bank could sell.

A) The sales manager has read an interesting article on Gold Exchange Traded Funds (ETFs) and would like some more information regarding both gold as an asset and ETFs.

1) Define an Exchange Traded Fund (1)

2) You are considering offering an ETF related to gold and are considering four options:

i) ETF buys gold directly

ii) ETF buys gold mining stocks

iii) ETF enters into a structured investment with an investment bank.

iv) ETF buys a gold index

Explain the advantages and disadvantages of each approach (assuming there are no regulatory issues with the approaches) (4)

3) How would you hedge the ETF's risk exposure in the third approach ? (3)

4) Why would an investor wish to buy gold ? (1)

5) What are the advantages to an investor of buying a gold ETF? (3)

6) The spot price of gold is INR 10,000 per ounce. Calculate the price of a three month gold future. The cost of storage for gold is INR 100 per ounce per half year and risk free is 8%pa (2)

B) The sales manager has also read about an opportunity to sell zero coupon bonds. By considering an asset backed securitisation structure, consider how an investment bank might use GSecs to create default free zero coupon bonds in India. (5)

C) The sales manager has heard of a competitor who is considering offering corporate loans based on either a synthetic swap offer rate based on borrowing in US $ (you may assume that the RBI allows such transaction) or MIBOR.

1) Explain how a synthetic swap might work. (1)

2) Explain what is MIBOR. (1)

3) Explain whether you would expect the MIBOR and synthetic swap offer rates to be similar or not. (1)

4) How might the synthetic swap offer rate become negative given current world economic scenario? (2)

5) Why do you think the scenario in 4) is much more likely for Singapore compared to India? (1)

D) The sales manager is attempting to convince a group of investors to purchase a callable bond but is unsure what exactly a callable bond is and what unique risks it may have for an investor.

1) Define what is meant by duration, volatility and convexity. (3)
2) Explain what convexity means in terms of price and yield of a bond. (2)
3) Define what is meant by a callable bond and how a coupon rate might compare with a non-callable bond. (2)
4) By considering a 15 year non-call 1 corporate bond, explain why a callable bond could have negative convexity. (5)
5) Explain how mortgage backed securities could have negative convexity. (1)

E) The sales manager is attempting to develop an Enhanced Currency Product, which allows an individual to potentially earn higher returns using FX. The Enhanced Currency Product allows the customer to select a conversion rate between INR and US $ (e.g. 1 US $ 1 buys INR 49.5) which determines the return that he will earn from the investment. At maturity (i.e. end of six months) he would earn interest at 8.1%pa and receive the proceeds in the weaker currency of INR or US $.

The current spot rate is US $1 buying INR 50.05. Consider an investment of INR 5 crore.

1) Calculate the value of INR 5 crore at current spot rate. (1)

2) If at the end of six months the FX rate is INR:US 51.3:1 what is the return on the investment in INR terms ? (1)

3) If at the end of six months the FX rate is INR:US 47.2:1 what is the return on the investment in INR terms ? (1)

4) Qualitatively, how would the bank price this product (2)

5) (i) Assuming that the stochastic process for a foreign currency is the same as that for a stock paying a dividend yield equal to the foreign risk-free rate, price the product assuming US one year risk- free is 1% pa and INR:US volatility is 20% (4)

(ii) State how will the bank structure its charges (1)

6) What are the risks to the customer in this product? (2)

For the purposes of this question, you meet all the necessary RBI/FEMA criteria.

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