Roll No…….

Total No. of Questions – **6** Total No. of Printed Pages - **9**

Time Allowed – **3** Hours Maximum Marks - **100**

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Answer to questions are to be given only in English except in the case of candidates who have opted for Hindi Medium. If a candidate has not opted for Hindi Medium, his/her answers in Hindi will not be valued.

Question No. **1** is compulsory.

Candidate are also required to answer any **four** questions from the remaining **five** questions

Working notes should form part of the respective answers.

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1. (a) Futures contracts are now being traded on the Sensex. The multiple of the futures contract is 50 times the index. Consider the following quotations of futures: **5**

Date	Open	High	Low	Closing
16/02/2001	4363	4462	4315	4330
19/02/2001	4330	4378	4302	4350
20/02/2001	4350	4382	4342	4359
21/02/2001	4359	4362	4285	4302
22/02/2001	4302	4286	4190	4262
23/02/2001	4262	4277	4118	4122
26/02/2001	4122	4174	4074	4112
27/02/2001	4112	4156	4020	4069
28/02/2001	4069	4264	4056	4247

Assume that one contract is purchased at the same price as the closing price on the first day and that the initial margin required is Rs.20,000 and the maintenance margin is Rs.15,000, you are required to calculate the changes in the margin account during the above days for a long position in one contract.

(b) C Ltd. & D Ltd. are contemplating a merger deal in which C Ltd. will acquire D Ltd. The relevant information about the firms are given as follows: **5**

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	C Ltd.	D Ltd.
Total Earnings (E) (in millions)	₹96	₹30
Number of outstanding shares (S) (in millions)	20	14
Earnings per share (EPS) (₹)	4.8	2.143
Price earnings ratio (P/E)	8	7
Market Price per share (P)(₹)	38.4	15

i. What is the maximum exchange ratio acceptable to the shareholders of C Ltd., if the P/E ratio of the combined firm is 7?

ii. What is the minimum exchange ratio acceptable to the shareholders of D Ltd., if the P/E ratio of the combined firm is 9?

(c) Everyday Industries Ltd (EIL) had earlier issued convertible bonds at par with face value Rs.100. These will mature at the end of 10 years from now. The bonds carry coupon at 12% payable semi-annually and are currently trading at Rs.115. They are callable at the end of three years from now at a premium of 5%. Each of the bonds can be converted, at the option of the investor, into five equity shares of face value Rs.10 each, at a premium of Rs.10 each. The shares are now trading at Rs.22. Conversion is optional for the investor, starting at the end of two years from now, up to any time till maturity. If the option to convert is not exercised, the bonds are redeemable in lump sum at the end of 10 years. Similar bonds without the conversion feature are now trading at a yield to maturity of 14%. The redemption at the end of 10 years will be made at a premium of 20%. **5**

You are required to calculate

a. Straight value of the bond

b. Yield to call on the bond, to an investor who did not opt for conversion if it is called at the end of three years from now

c. Premium over conversion value.

(d) P Ltd. is contemplating to borrow an amount of ₹ 50 crores for a period of 3 months in the coming 6 months time from now. The current rate of interest is 8% per annum but it may go up in 6 months time. The company wants to hedge itself against the likely increase in interest rate. **5**

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The Company's Bankers quoted an FRA (Forward Rate Agreement) at 8.30% per annum. Compute the effect of FRA and actual rate of interest cost to the company, if the actual rate of interest during consideration period happens to be (i) 8.60% p.a., or (ii) 7.80% p.a.

(Show your workings on the basis of months)

2. (a) The following data are available for three bonds A, B and C. These bonds are used by a bond portfolio manager to fund an outflow scheduled in 6 years. Current yield is 9%. All bonds have face value of ₹100 each and will be redeemed at par. Interest is payable annually. **10**

Bond	Maturity (Years)	Coupon rate
A	10	10%
B	8	11%
C	5	9%

i. Calculate the duration of each bond.

ii. The bond portfolio manager has been asked to keep 45% of the portfolio money in Bond A. Calculate the percentage amount to be invested in bonds B and C that need to be purchased to immunise the portfolio.

iii. After the portfolio has been formulated, an interest rate change occurs, increasing the yield to 11%. The new duration of these bonds are: Bond A = 7.15 Years, Bond B = 6.03 Years and Bond C = 4.27 years.

Is the portfolio still immunized? Why or why not?

iv. Determine the new percentage of B and C bonds that are needed to immunize the portfolio. Bond A remaining at 45% of the portfolio.

Present values be used as follows :

Present Values	t_1	t_2	t_3	t_4	t_5
$PVIF_{0.09,t}$	0.917	0.842	0.772	0.708	0.650

Present Values	t_6	t_7	t_8	t_9	t_{10}
$PVIF_{0.09,t}$	0.596	0.547	0.502	0.460	0.4224

(b) A German subsidiary of an US based MNC has to mobilize 100000 Euro's working capital for the next 12 months. It has the following options: **5**

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Loan from German Bank : @ 5% p.a.

Loan from US Parent Bank : @ 4% p.a.

Loan from Swiss Bank : @ 3% p.a.

Banks in Germany charge an additional 0.25% p.a. towards loan servicing. Loans from outside Germany attract withholding tax of 8% on interest payments. If the interest rates given above are market determined, examine which loan is the most attractive using interest rate differential.

(c) Explain Balancing Financial vis-a-vis Sustainable Growth. **5**

3. (a) A foreign institutional investor invested in units of a mutual fund in India for a period of one year. The following information is available regarding the investment and other economic variables: **5+2+3 = 10**

Value of investment	Rs.1000 million
NAV at the time of investment	Rs.10.00
NAV at the end of investment horizon	Rs.11.00
Dividend received per unit after 6 months	Rs.1.20
Rs./$ rate at the time of investment	44.50/44.60
Rs./$ rate at the end of investment horizon	46.70/46.85
Reinvestment rate during the period	10%
Inflation rate in India	8%
Inflation rate in US	3%

You are required to

a. Calculate the nominal return to FII.

b. Calculate the real return to FII.

c. Calculate the real return to an Indian investor who invested in the same fund for the same period.

(b) Sun, Zenith and Taurus are three companies, which are not finding suitable interest rates offered for their funds requirement, have approached a bank for arranging interest rate swap. **10**

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Company	Sun	Zenith	Taurus
Objective	Fixed rate(%)	T-bill rate based funds (%)	PLR based funds (%)
Fixed rate	14	12	15
T-bill rate based funds	T-bill + 4	T-bill + 3	T-bill + 5
PLR based funds	PLR + 2	PLR + 3	PLR + 4

The bank wants to arrange swaps between the three parties in such a way so that it can retain 25% of the total gain. The rest of the gain is to be distributed equally among the three parties.

You are required to show how the bank will structure the swap.

4. (a) You are interested in buying some equity stocks of RK Ltd. The company has 3 divisions operating in different industries. Division A captures 10% of its industries sales which is forecasted to be ₹ 50 crore for the industry. Division B and C captures 30% and 2% of their respective industry's sales, which are expected to be ₹ 20 crore and ₹ 8.5 crore respectively. Division A traditionally had a 5% net income margin, whereas divisions B and C had 8% and 10% net income margin respectively. RK Ltd. has 3,00,000 shares of equity stock outstanding, which sell at ₹ 250. **8**

The company has not paid dividend since it started its business 10 years ago. However from the market sources you come to know that RK Ltd. will start paying dividend in 3 years time and the pay-out ratio is 30%. Expecting this dividend, you would like to hold the stock for 5 year. By analysing the past financial statements, you have determine d that RK Ltd.'s required rate of return is 18% and that P/E ratio of 10 for the next year and on ending P/E ratio of 20 at the end of the fifth year are appropriate.

Required:

i. Would you purchase RK Ltd. equity at this time based on your one year forecast?

ii. If you expect earnings to grow @ 15% continuously, how much are you willing to pay for the stock of RK Ltd ?

Ignore taxation.

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PV factors are given below :

Years	1	2	3	4	5
PVIF@ 18%	0.847	0.718	0.609	0.516	0.437

(b) Mr. Alex, a practicing Chartered Accountant, can earn a return of 15 percent by investing in equity shares on his own. He is considering a recently announced equity based mutual fund scheme in which initial expenses are 6 percent and annual recurring expenses are 2 percent. **8**

i. How much should the mutual fund earn to provide Mr. Alex a return of 15 percent per annum?

ii. Mr. Alex's current Annual Professional Income is ₹ 40 Lakhs. His portfolio value is ₹ 50 Lakhs and now he is spending 10% of his time to manage his portfolio. If he spends this time on profession, his professional income will go up in same proportion. He is thinking to invest his entire portfolio into a Multicap Fund, assuming the fund's NAV will grow at 13% per annum (including dividend).

You are requested to advise Mr. Alex, whether he can invest the portfolio into Multicap Funds ? If so, what is the net financial benefit?

(c) "The Financial Risk can be viewed from different perspective". Explain this statement. **4**

5. (a) Consider the following prices of a stock during January 2000 and January 2001: **10**

Trading Days	**January 2000**	**January 2001**
1	130	500
2	133	492
3	133	472
4	139	460
5	139	416
6	141	392
7	142	430
8	141	392
9	144	416

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Based on the above prices, test for the weak form of market efficiency using auto-correlation test and comment on the result.

(b) Following is the information about Mr. J's portfolio: **6**

Investment in shares of ABC Ltd.	₹ 200 lakh
Investment in shares of XYZ Ltd.	₹ 200 lakh
Daily standard deviation of both shares	1%
Co-efficient of correlation between both shares	0.3

Required:

Determine the 10 days 99% Value At Risk (VAR) for Mr. J' s portfolio. Given : The Z score from the Normal Table at 99% confidence level is 2.33. (Show your calculations up to four decimal points).

(c) What are the problems in securitization? **4**

6. (a) Mr. Kapoor owns a portfolio with the following characteristics: **8**

	Security X	**Security Y**	**Risk Free Security**
Factor 1 sensitivity	0.75	1.50	0
Factor 2 sensitivity	0.60	1.10	0
Expected Return	15%	20%	10%

It is assumed that security returns are generated by a two factor model.

i. If Mr. Kapoor has ₹ 1,00,000 to invest and sells short ₹ 50,000 of security Y and purchases ₹ 1,50,000 of security X, what is the sensitivity of Mr. Kapoor's portfolio to the two factors?

ii. If Mr. Kapoor borrows ₹ 1,00,000 at the risk free rate and invests the amount he borrows along with the original amount of ₹ 1,00,000 in

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security X and Y in the same proportion as described in part (i), what is the sensitivity of the portfolio to the two factors?

iii. What is the expected return premium of factor 2?

(b) K Ltd. currently operates from 4 different buildings and wants to consolidate its operations into one building which is expected to cost ₹ 90 crores. The Board of K Ltd. had approved the above plan and to fund the above cost, agreed to avail an External Commercial Borrowing (ECB) of GBP 10 m from G Bank Ltd. on the following conditions: **8**

- The Loan will be availed on 1st April, 2019 with interest payable on half yearly rest.
- Average Loan Maturity life will be 3.4 years with an overall tenure of 5 years.
- Upfront Fee of 1.20%.
- Interest Cost is GBP 6 months LIBOR + Margin of 2.50%.
- The 6 month LIBOR is expected to be 1.05%.

K Ltd. also entered into a GBP-INR hedge at 1 GBP = INR 90 to cover the exposure on account of the above ECB Loan and the cost of the hedge is coming to 4.00% p.a.

As a Finance Manager, given the above information and taking the 1 GBP = INR 90:

i. Calculate the overall cost both in percentage and rupee terms on an annual basis.

ii. What is the cost of hedging in rupee terms?

iii. If K Ltd. wants to pursue an aggressive approach, what would be the net gain/loss for K Ltd. if the INR depreciates/appreciates against GBP by 10% at the end of the 5 years assuming that the loan is repaid in GBP at the end of 5 years?

Ignore time value and taxes and calculate to two decimals.

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(c) AB Ltd.'s equity shares are presently selling at a price of ₹ 500 each. An investor is interested in purchasing AB Ltd.'s shares. The investor expects that there is a 70% chance that the price will go up to ₹ 650 or a 30% chance that it will go down to ₹ 450, three months from now. There is a call option on the shares of the firm that can be exercised only at the end of three months at an exercise price of ₹ 550. **4**

Calculate the following:

i. If the investor wants a perfect hedge, what combination of the share and option should he select ?

ii. Explain how the investor will be able to maintain identical position regardless of the share price.

iii. If the risk-free rate of return is 5% for the three months period, what is the value of the option at the beginning of the period ?

iv. What is the expected return on the option?