

Roll No.

Total No. of Questions – 6

Total No. of Printed Pages – 11

Time Allowed – 3 Hours

Maximum Marks – 100

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Answers 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.

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

Working notes should form part of the respective answer.

1. (a) ZX Ltd. has made ^{FC payable} purchases worth USD 80,000 on 1st May 2020 for which it has to make a payment on 1st November 2020. The present exchange rate is INR/USD 75. The company can purchase forward dollars at INR/USD 74. The company will have to make an upfront premium @ 1 per cent of the forward amount purchased. The cost of funds to ZX Ltd. is 10 per cent per annum. Marks 8

The company can hedge its position with the following expected rate of USD in foreign exchange market on 1st May 2020 : c^r

Exchange Rate	Probability		
(i) INR/USD 77	0.15	11.55	ex 3
(ii) INR/USD 71	0.25	14.75	ex 0
(iii) INR/USD 79	0.20	15.8	ex 3
(iv) INR/USD 74	0.40	29.6	ex 0

You are required to advise the company for a suitable cover for risk.

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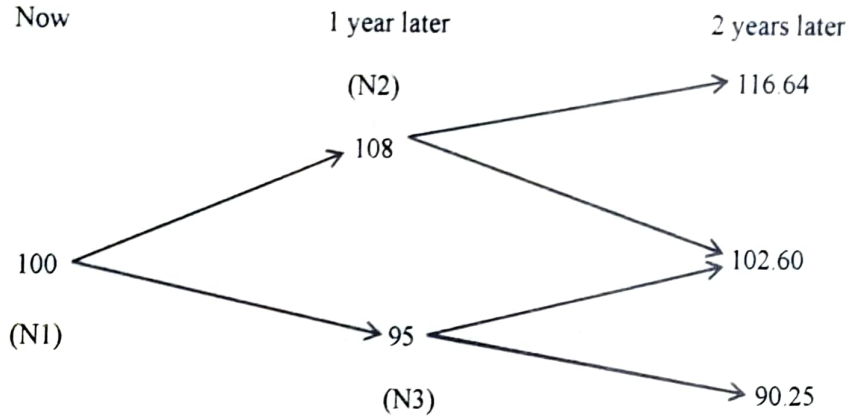
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(b) A two year tree for a share of stock in ABC Ltd., is as follows :

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Consider a two years American call option on the stock of ABC Ltd., with a strike price of ₹ 98. The current price of the stock is ₹ 100. Risk free return is 5 per cent per annum with a continuous compounding and $e^{0.05} = 1.05127$.

Assume two time periods of one year each.

Using the Binomial Model, calculate:

- (i) The probability of price moving up and down;
- (ii) Expected pay offs at each nodes i.e. N1, N2 and N3 (round off upto 2 decimal points).

(c) On Tuesday morning (before opening of the capital market) an investor, while going through his bank statement, has observed that an amount of ₹ 7 lakhs is lying in his bank account. This amount is available for use from Tuesday till Friday. The Bank requires a minimum balance of ₹ 1000 all the time. The investor desires to make a maximum possible investment where Value at Risk (VaR) should not exceed the balance lying in his bank account. The standard deviation of market price of the security is 1.5 per cent per day. The required confidence level is 99 per cent.

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Given

Standard Normal Probabilities										
Z	0.00	.01	.02	.03	0.04	.05	.06	.07	.08	.09
2.2	.9861	.9864	.9868	.09871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9998	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9923	.9925	.9929	.9931	.9932	.9934	.9936

You are required to determine the maximum possible investment.

2. (a) AB Industries has Equity Capital of ₹ 12 Lakhs, total Debt of ₹ 8 Lakhs, and annual sales of ₹ 30 Lakhs. Two mutually exclusive proposals are under consideration for the next year. The details of the proposals are as under :

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Particulars	Proposal no. 1	Proposal no. 2
Target Assets to Sales Ratio	0.65	0.62
Target Net Profit Margin (%)	4	5
Target Debt Equity Ratio (DER)	2:3	4:1
Target Retention Ratio (of Earnings) (%)	75	-
Annual Dividend (₹ In Lakhs)	-	0.30
New Equity Raised (₹ in Lakhs)	-	1

Assets.
net profit

$$\frac{D}{E} = \frac{4}{1}$$

$$\frac{A}{S} = 0.65$$

$$\frac{N}{S} = 4$$

You are required to calculate sustainable growth rate for both the proposals.

$$ROE = (1 - \text{Dividend Payout Ratio})$$

$$ROE = \frac{N}{S}$$

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$$\frac{N}{S} = \frac{D}{D+E}$$

$$24 + 2D = 30$$

$$24 \Rightarrow 30$$

$$\frac{4}{1} = \frac{D}{D+E}$$

$$4D = D + E$$

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- (b) IB an Indian firm has its subsidiary in Japan and Zaki a Japanese firm has its subsidiary in India and face the following interest rates :

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Company	IB	Zaki
INR floating rate	BPLR + 0.50 %	BPLR + 2.50 %
JPY (Fixed rate)	2 %	2.25 %

Zaki ^{Desire} wishes to borrow Rupee Loan at a floating rate and IB ^{Fixed} wishes to borrow JPY at a fixed rate. The amount of loan required by both the firms is same at the current exchange rate. A financial institution may arrange a swap and requires 25 basis points as its commission. Gain, if any, is to be shared by the firms equally.

You are required to find out :

- Whether a swap can be arranged which may be beneficial to both the firms ?
- What rate of interest will the firms end up paying ?

- (c) Peer - to - Peer Lending and Crowd funding are same and traditional methods of funding. Do you agree ? Justify your stand.

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3. (a) The following data are available for a bond :

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Face Value ₹ 10,000 to be redeemed at par on maturity

Coupon rate 8.5 per cent per annum

Years to Maturity 5 years

Yield to Maturity (YTM) 10 per cent

You are required to calculate :

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- (i) Current market price of the Bond,
(ii) Macaulay's Duration,
(iii) Volatility of the Bond,
(iv) Convexity of the Bond,
(v) Expected market price, if there is a decrease in the YTM by 200 basis points
(a) By Macaulay's Duration based estimate
(b) By Intrinsic Value Method.

Given

Years	1	2	3	4	5
PVIF(10%,n)	0.909	0.826	0.751	0.683	0.621
PVIF(8%,n)	0.926	0.857	0.794	0.735	0.681

- (b) M/S. Corpus an AMC, on 1.04.2015 has floated two schemes viz. Dividend Plan and Bonus Plan. Mr. X, an investor has invested in both the schemes. The following details (except the issue price) are available :

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Date	Dividend (%)	Bonus Ratio	NAV	
			Dividend Plan	Bonus Plan
1.04.2015			?	?
31.12.2016		1:4 (One unit on 4 units held)	47	40
31.03.2017	12		48	42
31.03.2018	10		50	39
31.12.2018		1:5 (One unit on 5 units held)	46	43
31.03.2019	15		45	42
31.03.2020	-	-	49	44

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Additional details				
Investment (₹)	₹ 9,20,000	₹ 10,00,000		
Average Profit (₹)	₹ 27,748.60			
Average Yield (%)		6.40		

You are required to calculate the issue price of both the schemes as on 1.04.2015.

(c) An individual attempts to found and build a company from personal ^{Trade credit} finances or from the operating revenues of the new company. What this method is called? ^{Bootstrapping} Discuss any two methods. ^{TC} ^{Leaving factors}

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4. (a) ICL is proposing to take over SVL with an objective to diversify. ICL's profit after tax (PAT) has grown @ 18 per cent per annum and SVL's PAT is grown @ 15 per cent per annum. Both the companies pay dividend regularly. The summarised Profit & Loss Account of both the companies are as follows :

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₹ in Crores

Particulars	ICL	SVL
Net Sales	4,545	1,500
PBIT	2,980	720
Interest	750	25
Provision for Tax	1,440	445
PAT	790	250
Dividends	235	125
Undistributed Profits	555	125

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	ICL		SVL	
Fixed Assets				
Land & Building (Net)	720		190	
Plant & Machinery (Net)	900		350	
Furniture & Fixtures (Net)	30	1,650	10	550
Current Assets		775		580
Less Current Liabilities				
Creditors	230		130	
Overdrafts	35		10	
Provision for Tax	145		50	
Provision for dividends	60	470	50	240
Net Assets		1,955		890
Paid up Share Capital (₹ 10 per share)	250		125	
Reserves and Surplus	1,050	1,300	660	785
Borrowing		655		105
Capital Employed		1,955		890
Market Price Share (₹)		52		75

ICL's Land & Buildings are stated at current prices. SVL's Land & Buildings are revalued three years ago. There has been an increase of 30 per cent per year in the value of Land & Buildings.

SVL is expected to grow @ 18 per cent each year, after merger.

ICL's Management wants to determine the premium on the shares over the current market price which can be paid on the acquisition of SVL.

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You are required to determine the premium using :

- (i) Net Worth adjusted for the current value of Land & Buildings plus the estimated average profit after tax (PAT) for the next five years.
- (ii) The dividend growth formula.
- (iii) ICL will push forward which method during the course of negotiations ?

Period (t)	1	2	3	4	5
FVIF(30%, t)	1.300	1.690	2.197	2.856	3.713
FVIF(15 %,t)	1.15	2.4725	3.9938	5.7424	7.7537

- ~~(b)~~ USD 10,000 is lying idle in your Bank Account. You are able to get the following quotes from the dealers :

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Dealer	Quote
A	EUR/USD 1.1539 → $\frac{6}{€}$
B	EUR/GBP 0.9094 → $\frac{5}{€}$
C	GBP/USD 1.2752 → $\frac{1}{\$}$

Is there an opportunity of gain from these quotes ?

- (c) Side Pocketing enhances the value of the Mutual Fund. Do you agree ?
Briefly explain the process of side pocketing.

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5. (a) ICL an Indian MNC is executing a plant in Sri Lanka. It has raised ₹ 400 billion. Half of the amount will be required after six months' time. ICL is looking an opportunity to invest this amount on 1st April, 2020 for a period of six months. It is considering two underlying proposals :

Market	Japan	US
Nature of Investment	Index Fund (JPY)	Treasury Bills (USD)
Dividend (in billions)	25	-
Income from stock lending (in billions)	11.9276	-
Discount on initial investment at the end	2%	-
Interest	-	5 per cent per annum
Exchange Rate (1 st April, 2020)	JPY/INR 1.58	USD/INR 0.014
Exchange Rate (30 th September, 2020)	JPY/INR 1.57	USD/INR 0.013

You, as an Investment Manager, is required to suggest the best course of option.

- (b) The following are the details of three mutual funds of MFL :

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	Growth Fund	Balanced Fund	Regular Fund	Market
Average Return (%)	7	6	5	9
Variance	92.16	54.76	40.96	57.76
Coefficient of Determination	0.3025	0.6561	0.9604	

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The yield on 182 days Treasury Bill is 9 per cent per annum

You are required to :

- (i) Rank the funds as per Sharpe's measure.
- (ii) Rank the funds as per Treynor's measure.
- (iii) Compare the performance with the market.

- (c) In an efficient market, technical analysis may not work perfectly. However, with imperfections, inefficiencies and irrationalities, which characterises the real world, technical analysis may be helpful.

4

Critically analyse the statement.

6. (a) An investor is considering to purchase the equity shares of LX Ltd., whose current market price (CMP) is ₹ 112. The company is proposing a dividend of ₹ 4 for the next year. LX Ltd. is expected to grow @ 20 per cent per annum for the next four years. The growth will decline linearly to 16 per cent per annum after first four years. Thereafter, it will stabilise at 16 per cent per annum infinitely. The investor requires a return of 20 per cent per annum.

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You are required

- (i) To calculate the intrinsic value of the share of LX Ltd.
- (ii) Whether it is worth to purchase the share at this price.

Period	1	2	3	4	5	6	7
PVIF(20%,n)	0.833	0.694	0.579	0.482	0.402	0.335	0.279

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- (b) The Management of a multinational company TL Ltd. is engaged in construction of Infrastructure Project. A proposal to construct a Toll Road in Nepal is under consideration of the Management.

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The following information is available :-

The initial investment will be in purchase of equipment costing USD 250 lakhs. The economic life of the equipment is 10 years. The depreciation on the equipment will be charged on straight line method. EBIDTA to be collected from the Toll Road is projected to be USD 33 lakhs per annum for a period of 20 years..

To encourage investment Nepalese government is offering a 15 year term loan of USD 150 lakhs at an interest rate of 6 per cent per annum. The interest is to paid annually. The loan will be repaid at the end of 15 year in one tranche.

The required rate of return for the project under all equity financing is 12 per cent per annum.

Post tax cost of debt is 5.6 per cent per annum.

Corporate Tax Rate is 30 per cent.

All cash Flows will be in USD.

Ignore inflation.

You are required to advise the management on the viability of the proposal by using Adjusted Net Present Value method.

Given

PVIFA (12%, 10) = 5.650, PVIFA (12%, 20) = 7.469, PVIFA (8%, 15) = 8.559, PVIF (8%, 15) = 0.315

- (c) Distinguish between Pass Through Certificates (PTC) and Pay Through Securities (PTS).

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OR

Differentiate between Economic Value Added (EVA) and Market Value Added (MVA)