

Roll No. ....

Total No. of Questions – 6

Total No. of Printed Pages – 12

Time Allowed – 3 Hours



Maximum Marks – 100

## AES

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 who 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 answers.

**Marks**

1. (a) On August 1, 2023, an investor has a portfolio consisting of 5 securities as shown below : **8**

Security	Market Price (₹)	No. of Shares	Beta
A	60.00	450	0.87
B	320.00	850	1.31
C	640.00	200	0.94
D	130.00	500	0.66
E	480.00	600	1.50

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(2)

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The cost of capital for the investor is 20% p.a. compounded. The current NIFTY value is 19,500. NIFTY futures are available with expiry for 3 months (Oct-23) and 4 months (Nov-23) and are currently quoted at 19,700 and 19,900 respectively. Each NIFTY futures can be traded in units of 50 only.

You are required to calculate :

- (i) The beta of his portfolio;
  - (ii) Theoretical value of Futures contract for contracts expiring in Oct. and Nov. (Given  $e^{0.05} = 1.05127$ ,  $e^{0.06} = 1.06184$ ,  $e^{0.07} = 1.07251$ )
  - (iii) The number of contracts of NIFTY the investor needs to sell to get a full hedge until November for his portfolio.
  - (iv) The number of future contracts the investor should trade if he desires to reduce the beta of his portfolio to 0.25.
- (b) An investor has categorized all the available stock in the market into the following types and the estimated weights of the categories of stocks in the market index are given below. Further, the sensitivity of returns of these categories of stocks to two factors Inflation and Stock Market are also given below :

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Category	Weight in Market Index	Factor 1 (Inflation)			Factor 2 (Stock Market)		
		Beta 1	Expected Value in %	Actual Value in %	Beta 2	Expected Value in %	Actual Value in %
Small Cap	20%	1.20	6.70	6.70	0.80	10.00	10.50
Medium Cap	30%	1.75	4.50	6.00	0.90	7.00	8.00
Large Cap	15%	1.30	6.75	8.00	1.165	9.00	10.00
Flexi Cap	35%	1.70	7.00	6.50	0.85	8.85	9.75

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Risk Free Rate of Interest is 7.50%.

Round off to 2 decimal.

You are required to calculate :

- (i) Expected return on the market index for both the factors.
  - (ii) Expected return on the market index under Arbitrage Pricing Theory (Existing Scenario)
  - (iii) Expected return on the market index under Arbitrage Pricing Theory, if the composition of the Portfolio is changed to 25% equally in all four categories.
  - (iv) Which alternative (Existing or Changed) will be more profitable?
- (c) "Lack of existence of a well-developed debt market in India, is an obstacle that hinders the growth of the Secondary Market of securitized or asset backed Securities". Is it true? 4
- What are the other problems in Securitization Process ? (Any three)

2. (a) Following is the information available pertaining to shares of Omni Ltd. : 8

Current Market Price (₹)	₹ 420.00
Strike Price (₹)	₹ 450.00
Maximum Price (₹) expected in next 3 months' time	₹ 525.00
Minimum Price (₹) expected in next 3 months' time	₹ 378.00
Continuously Compounded Rate of Interest (p.a.) (%)	8.00%
$e^{rt}$	1.0202

From the above :

- (i) Calculate the 3 months call option by using Binomial Method and Risk Neutral Method.

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Are the calculated values under both the models are same ?  
(ii) State also clearly the basis of Valuation of options under these models.

(b) Mr. S has invested in 3 different Mutual Fund Schemes. The following are the details of the same :

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Particulars	Scheme A	Scheme B	Scheme C
Date of Investment	01-06-2022	01-07-2022	01-08-2022
Net Asset Value at Entry Date	₹ 11.00	₹ 10.50	₹ 12.00
Dividend received upto 31-03-23 (₹)	12,500.00	17,000.00	4,000.00
Unit NAV at 31-03-23 (₹)	11.25	11.48	10.80
Increase/(Decrease) in NAV (₹)	22,727.27	93,333.33	(50,000.00)
Effective Rate of Yield per annum	4.2296%	14.6978%	(-13.8190%)

Ignore Entry/Exit load expenditure.

Assume 365 days in a year. Round off the investment to nearest ₹ 100.

You are required to calculate :

- The amount of investments made initially by Mr. S in these schemes.
- Number of units invested in the three schemes by Mr. S.

Advise also whether he can continue to hold this investment or can he redeem now.

(c) Explain in brief the following :

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- Conversion factor in Interest Rate Futures.
- VEGA and RHO in OPTION VALUE.

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3. (a) The following information of AB Ltd., is available below :

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Market Value per share – ₹ 20 per share

Equity Share Capital – 12,00,000 shares @ the face value of ₹ 10 per share.

The company is planning to issue Rights Shares to the existing shareholders and raise ₹ 60,00,000 to finance a new project.

You are required :

(i) To calculate the ex-right price of shares and the value of right, if

(a) The company offers one right share for every three shares held.

(b) The company offers two right shares for every five shares held.

(ii) To show the effect of the rights issue on the wealth of a Shareholder X, who has 1,500 shares, when the company offers one right share for every three shares held, assuming :

(a) He subscribes to the Rights issue

(b) He ignores the Rights issue

(b) A Japanese company imports hi-tech printer cartridges from US worth \$ 1 million. The chief financial officer of the company wishes to know the best strategy for protection against uncertainty, for the payment that has to be made at the end of 3 months. Financial team of the company has collected the following options for evaluation :

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Table-1 : Exchange rates quoted in FOREX Market :

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¥/\$ Quotations	Bid Price	Offer/Ask Price
Spot Rates	146.03	146.63
3M-Forward Rates	144.03	145.00
6M-Forward Rates	146.35	146.70

Table-2 : Options Market rates for European options with 3 months expiry :

Type of Option	Strike Price (X) (¥/\$)	Premium (%) for Call & Put Options
Call & Put	145.20	1.6766% (Call) & 1.7414% (Put)
Call & Put	146.00	1.3505% (Call) & 2.1006% (Put)

The expected spot price at expiry is ¥ / \$ : 144.90/145.05

Suggest the best strategy for CFO of the Japanese Company to protect against uncertainty, with respect to the following alternatives :

- (i) Forward Hedge
  - (ii) Buy 3 months call, X = 145.20
  - (iii) Sell 3 months put, X = 145.20
  - (iv) Buy call & sell put both having X = 146.00
- (c) Describe the main function of corporate level strategy and state which three basic questions it should be able to answer.

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4. (a) The following information is provided relating to the acquiring Company R Ltd. And the target Company K Ltd. :

Particulars	R Ltd.	K Ltd.
Promoter Holding	50%	60%
Share Capital (₹ in lakh)	100	50
Free Reserves & Surplus (₹ in lakh)	400	250
Paid up value per share (₹)	100	10
Free Float Market Capitalization (₹ in lakh)	200	64
P/E Ratio (times)	20	8

For deciding the swap ratio, weights are assigned to different parameters by the Board of Directors of both the companies as follows :

Book value	20%
EPS	60%
Market Price	20%

You are required to calculate :

- Swap ratio based on above weights.
- Book Value per share, EPS and expected market price of R Ltd. after acquisition of K Ltd. (Assuming PE multiple of K Ltd. remains unchanged and all assets and liabilities of K Ltd. are taken over at book value)
- Revised promoter's holding (%) in R Ltd. after acquisition.
- Post-acquisition Free Float Market Capitalization.

- (b) In March, 2022, SMD Bank sold 7% Interest Rate Futures underlying Notional 7.5% Coupon Bonds. The Exchange provides following details of eligible securities that can be delivered :

Marks

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Security	Quoted Spot Price of Bonds	Conversion Factor
6.55 GOI 2025	9264.0	0.9060
6.80 GOI 2029	8775.0	0.9195
6.85 GOI 2026	9723.0	0.9643
8.44 GOI 2027	11463.0	1.1734
8.85 GOI 2028	12017.0	1.2428

Recommend the Cheapest to Deliver (CTD) security that should be delivered by SMD Bank if Future settlement price is 10000.

- (c) List out the four methods for Identification and Management of Financial Risk. What are the parameters to identify the currency risk ? 4
5. (a) An import customer booked a forward contract with the bank on 10<sup>th</sup> April for USD 20,000 due on 10<sup>th</sup> June at ₹ 49.4000. The bank covered its position in the market at ₹ 49.2800. 8



The exchange rate for dollar in the interbank market on 10<sup>th</sup> June and 20<sup>th</sup> June were :

	10 <sup>th</sup> June	20 <sup>th</sup> June
Spot	USD 1 = ₹ 48.8000/8200	48.6800/7200
Spot/June	48.9200/9500	48.8000/8500
Spot/July	49.0500/0900	48.9300/9900
Spot/August	49.3000/3500	49.1800/2500
Spot/September	49.6000/6600	49.4800/5600
Exchange margin is 0.10%		
Interest on outlay of funds 12%		

Calculate how the bank will react, if the customer requires on 20<sup>th</sup> June :

- (i) To cancel the contract.
  - (a) Exchange difference,
  - (b) Swap loss,  $48.8 - 95$
  - (c) Interest on outlay of funds and  $49.4 - 249.28$
  - (d) Cancellation charges
- (ii) To Execute the contract.
- (iii) To Extend the contract with due date to fall on 10<sup>th</sup> August.

- (b) Expected returns on two stocks against BSE SENSEX returns are given in the following table under two scenarios – bullish and bearish : Marks  
8

Market Return	Scenario-1 : Bullish Case	Scenario-2 : Bearish Case
BSE Sensex	25%	-5%
Stock R	32%	-4%
Stock Z	18%	-3%

You are required to calculate :

- (i) The Betas of two stocks R and Z.
  - (ii) Expected return on each stock, if the likelihood of market achieving Scenario-1 is thrice the likelihood of the market achieving Scenario-2.
  - (iii) The Security Market Line (SML), if the risk free rate is 8% and likelihood of the market return achieving the bullish base returns of 25% is thrice that of achieving -5% returns.
  - (iv) The Alphas of the two stocks based on Sharpe Index Model.
- (c) NIYA Healthcare is a proprietary concern engaged in the manufacture and development of Pharmaceutical products since last five years. To scale up the business operations and increase the present turnover which is hovering around 500 Million, the proprietor decides to convert his existing business into a Private Limited Company. He also wants to get access to various tax benefits, easier compliances under the startup India initiative and get recognized as a startup company. Advise whether NIYA Healthcare can be recognized as a startup company in view of the criteria considered eligible for the startup recognition initiated by the Government of India ? 4

6. (a) The following information is given for three companies that are identical in size, activities and operations, except for their capital structure :

Particulars	A	B	C
Total Capital Invested	10,00,000	10,00,000	10,00,000
Debt/Assets Ratio	0.75	0.60	0.25
Shares Outstanding	8,960	13,300	30,100
Pre-tax cost of debt	12%	10%	14%
Operating Income (EBIT)	2,50,000	2,50,000	2,50,000
Beta Values	1.25	1.00	0.875

The tax rate is uniform 30% in all cases. Risk free interest rate is 6% and Market Risk premium is 16%.

You are required to compute :

- Weighted average cost of capital for each company.
  - Economic Value Added (EVA) for each company.
  - Based on EVA which company would be considered for best investment ? Give reasons.
  - If the industry PE ratio is 12x, estimate the market price and Market Capitalization for each of the companies.
- (b) Suppose a dealer bank quotes for a generic swap "AIC 8%/8.20% vs. 6M LIBOR Flat". Notional principal amount of swap is ₹ 1 Million, and the same is for a period of three years, reset after every six months.
- In this context, answer the following questions :
- Interpret the dealer bank quote.
  - If a firm is buying a swap, what is the nature of cash flows ?

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- (3) If a firm is selling a swap, what is the nature of cash flows ?
- (4) Calculate semi-annual fixed payment for the buyer of swap at the end of every six months.
- (5) If the six month period from the effective date of swap to the settlement date comprises of 181 days and that the corresponding LIBOR was 5% on the effective date of swap, then what will be the first floating rate payment for the buyer ?
- (6) If the settlement is on "Net Basis", how much the buyer of swap has to pay or receive at the end of first six months ?

[Assume 30/360 days basis]

- (c) In a rational, well ordered and efficient market, technical analysis may not work very well". Is it true ? List out the reasons for this statement regarding Technical Analysis.

4

OR

"In Deal Structuring, in many structures to facilitate the exit, the Venture Capital may put a tag-along clause". What do you mean by that clause ? Explain Deal Structuring and Exit Plan to Venture Capital Investment Process.

5,6,4,2