

Roll No.

Total No. of Questions 47

Total No. of Printed Pages – 12

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 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 **five** questions from the remaining **six** questions.

Working notes should form part of the respective answers.

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1. (a) A US investor chose to invest in Sensex for a period of one year. The relevant information is given below. **5**

Size of investment (\$)	20,00,000
Spot rate 1 year ago (₹/\$)	42.50/60
Spot rate now (₹/\$)	43.85/90
Sensex 1 year ago	3,256
Sensex now	3,765
Inflation in US	5%
Inflation in India	9%

- (i) Compute the nominal rate of return to the US investor.

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- (ii) Compute the real depreciation/appreciation of Rupee.
- (iii) What should be the exchange rate if relevant purchasing power parity holds good ?
- (iv) What will be the real return to an Indian investor in Sensex ?

- (b) Bank A enters into a Repo for 21 days with Bank B in 8% Government of India Bonds 2020 @ 6.10% for ₹ 5 crore. Assuming that clean price is ₹ 97.30 and initial margin is 1.50% and days of accrued interest are 240 days (assume 360 days in a year).

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Compute :

- (i) the dirty price.
- (ii) the repayment at maturity.

- (c) Following is the information for the free options bond :

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Face value of the bond	₹ 1,000
Coupon rate	7%
Terms of Maturity	7 years
Yield to Maturity	8%

You are required to calculate :

- (i) Market price of the bond and duration.

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- (ii) If there is an increase in yield by 35 basis points, what would be the price of bond ?

Present Value	t_1	t_2	t_3	t_4	t_5	t_6	t_7
$PVIF_{0.07, t}$	0.935	0.874	0.817	0.764	0.714	0.667	0.623
$PVIF_{0.08, t}$	0.926	0.857	0.794	0.735	0.681	0.631	0.584

- (d) M/s. B Ltd. has declared dividend of ₹ 2.50 per share on the EPS of ₹ 7. Earnings of the company are expected to grow at the rate of 10% for the next 3 years and to be stabilized at 3% thereafter.

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The pay-out ratio is expected to remain at the same level during 3 years and then will increase to 60%. If required rate of return is 16%, calculate :

- (i) The current price of the share.
- (ii) The expected price of share of B Ltd. at the end of 3rd year.

Following table may be used for calculations.

Present Values	t_1	t_2	t_3	t_4	t_5
$PVIF_{0.16, t}$	0.862	0.743	0.641	0.553	0.477

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2. (a) Following are the details of a portfolio consisting of three shares :

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Share	Portfolio weight	Beta	Expected return in %	Total Variance
DGS	0.35	0.30	12%	0.010
DV	0.25	1.20	18%	0.030
BP	0.40	0.50	10%	0.015

Standard Deviation of Market Portfolio Returns = 14%

Covariance (DGS, DV) = 0.020,

Covariance (DV, BP) = 0.050,

Covariance (BP, DGS) = 0.030

You are required to calculate :

- (i) The Portfolio Beta
- (ii) Residual Variance of each of the three Shares,
- (iii) Portfolio Variance using Sharpe Index Model,
- (iv) Portfolio Variance (on the basis of Modern Portfolio Theory given by Markowitz).

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- (b) Mr. A is holding 1000 shares of face value of ₹ 100 each of M/s. ABC Ltd. He wants to hold these shares for long term and have no intention to sell. **8**

On 1st January 2020, M/s. XYZ Ltd. has made short sales of M/s. ABC Ltd.'s shares and approached Mr. A to lend his shares under Stock Lending Scheme with following terms :

- (i) Shares to be borrowed for 3 months from 01-01-2020 to 31-03-2020,
- (ii) Lending Charges/Fees of 1% to be paid every month on the closing price of the stock quoted in Stock Exchange and
- (iii) Bank Guarantee will be provided as collateral for the value as on 01-01-2020.

Other Information :

- (a) Cost of Bank Guarantee is 8% per annum,
- (b) On 29-02-2020 M/s. ABC Ltd., declared dividend of 25%,
- (c) Closing price of M/s. ABC Ltd.'s share quoted in Stock Exchange on various dates are as follows :

Date	Share Price in	Share Price in
	Scenario – 1 Bullish	Scenario – 2 Bullish
01-01-2020	1000	1000
31-01-2020	1020	980
29-02-2020	1040	960
31-03-2020	1050	940

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You are required to find out :

- (i) Earnings of Mr. A through Stock Lending Scheme in both the scenarios,
- (ii) Total Earnings of Mr. A during 01-01-2020 to 31-03-2020 in both the scenarios,
- (iii) What is the Profit or loss to M/s. XYZ by shorting the shares using through Stock Lending Scheme in both the scenarios ?

3. (a) On 1st April, an open ended scheme of mutual fund had 400 lakh units outstanding with Net Assets Value (NAV) of ₹ 19. At the end of April, it issued 5 lakh units at an opening NAV plus 2% load, adjusted for dividend equalization. At the end of May, 4 Lakh units were repurchased at the opening NAV less 2% exit load adjusted for dividend equalization. At the end of June, 60% of its available income was distributed.

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In respect of April-June quarter, the following additional information is available :

Particulars	₹ in Lakhs
Portfolio value appreciation	515.67
Income of April	31.960
Income of May	46.125
Income for June	58.470

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You are required to calculate :

- (i) Income available for distribution;
- (ii) Issue price at the end of April;
- (iii) Repurchase price at the end of May; and
- (iv) Net Asset Value (NAV) as on 30th June.

- (b) B Ltd. wants to acquire S Ltd. and has offered a swap ratio of 2 : 3 (2 shares for every 3 share of S Ltd.) Following information is available :

Particulars	B Ltd.	S Ltd.
Profit after tax (in ₹)	21,00,000	4,50,000
Equity shares outstanding (Nos.)	6,00,000	1,80,000
EPS (in ₹)	3.5	2.5
PE Ratio	10 times	7 times
Price quoting per share on BSE before the merger announcement	35	17.5

Required :

- (i) The number of equity shares to be issued by B Ltd. for acquisition of S Ltd.
- (ii) What is the EPS of B Ltd. after the acquisition ?

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- (iii) Determine the equivalent earnings per share of S Ltd. and calculate per share gain or loss to shareholders of S Ltd.
- (iv) What is the expected market price per share of B Ltd. after the acquisition, assuming its PE multiple remains unchanged ?
- (v) Determine the market value of the merged firm.
- (vi) After the announcement of merger, price of shares of S Ltd. rose by 10% on BSE. Mr. X, an investor, having 10,000 shares of S Ltd. is having another investment opportunity, which yields annual return of 14% is seeking your advise whether he needs to offload the shares in the market or accept the shares from B Ltd.

4. (a) M/s. Taxi Travels operators is having 108 no. of vehicles, all are running on diesel, and have the remaining lives of 3 years. To reduce the pollution the company has decided to convert all vehicles into CNG Mode or Electric Mode by modifying the existing vehicles, which will have lives of 6 years and 4 years respectively. The initial investment outlay for modification and annual operating costs are expected to be as follows :

Particulars	Diesel	CNG	Electric
Investment for modification	—	5,00,000	6,00,000
Annual Operating Costs	2,50,000	1,50,000	60,000
Salvage value	10,000	1,00,000	50,000

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Revenue from each vehicle is expected to be ₹ 25,000 per month

- (i) If the hurdle rate is 12%, which system should Taxi Travels choose?
- (ii) Find out profit for each vehicle and also total profit to the company.

The PVIF @ 12% for the six years.

Year	1	2	3	4	5	6
PVIF	0.8929	0.7972	0.7118	0.6355	0.5674	0.5066

- (b) Following information is available for M/s. ABC Ltd.

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Current dividend ₹ 2.50 per share

Discount rate 10.5%

Growth rate 2%

- (i) Calculate the present price of the share of ABC Ltd.
- (ii) Is its stock overvalued, if stock price is ₹ 35, ROE 9% and EPS ₹ 2.25.

5. (a) A Ltd. decided to acquire a machine costing ₹ 5,00,000. The expected life of machine is 10 years with no salvage value. Depreciation will be charged on straight line basis. Tax rate is 30%. The financial manager seeks your advice for selection between the following two alternatives using Bower-Herringer-Williamson method, using cost of capital at the rate of 12%.

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- (i) Leasing : The leasing company is expecting a minimum return of 10% on its investment in leasing business and lease payment will be received in advance.
- (ii) Loan : The loan will carry interest rate of 15% and the annual instalment will be paid in advance.

(Round off all calculations to nearest whole numbers)

Present Value	t_1	t_2	t_3	t_4	t_5	t_6	t_7	t_8	t_9	t_{10}
$PVIF_{0.10, t}$	0.909	0.826	0.751	0.683	0.621	0.565	0.514	0.467	0.425	0.386
$PVIF_{0.12, t}$	0.893	0.797	0.712	0.636	0.568	0.507	0.453	0.404	0.361	0.322
$PVIF_{0.15, t}$	0.870	0.757	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247

- (b) (i) Interest rates for 3 months in USA and Canada are as follows :

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Currency	Borrow	Interest
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US \$	4%	2.5%
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Canadian \$	4.5%	3.5%
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- (ii) Can \$/US \$ spot 1.235 – 1.240

3 months forward 1.255 – 1.260

Advice, the currency in which borrowing and lending for 3 months needs to be done for the US company. Take 3 months = 90/360 days.

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6. (a) M/s. A Ltd. is planning to import an equipment from Japan at a cost of 3,400 lakh yens. The company may avail loans at 18% p.a. interest with quarterly rests with which it can import the said equipment. The company has also an offer from Osaka branch of an Indian bank extending credit of 180 days at 2% p.a. against opening of an irrevocable letter of credit (L/C). 8

Additional information :

Present Exchange Rate ₹ 100 = 340 yen

180 days forward rate ₹ 100 = 345 yen

Commission charges for L/C at 2% per 12 months.

Advice whether the company should accept the offer.

- (b) The credit sales and receivables of M/s.X Ltd. at the end of the year are estimated at ₹ 4,00,00,000 and ₹ 50,00,000 respectively. The average variable overdraft interest rate is 5%. X Ltd. is considering a proposal for assigning to a Factor, the collections of its debts on a non-recourse basis at an annual fee of 3% on credit sales. As a result, X Ltd. will save ₹ 100,000 per year in its administrative cost and ₹ 3,50,000 for its bad debts. The factor will maintain a receivable collection period of 30 days and advance 80% of the face value thereof at an annual interest rate of 7%. Evaluate the viability of proposal. Assume 365 days in a year. 8

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=16

7. Answer any **four** of the following :

- (a) What is take over by reverse bid or reverse merger ?
- (b) Write a short note on Euro Convertible Bonds.
- (c) Explain the different levels of strategy.
- (d) Write any four differences between 'Systematic risk' and 'Unsystematic risk'.
- (e) State the assumptions of Black-Scholes model.

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