CMA SFM Test - 15

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Mission 80+
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Must Write following details on First page of your Answer sheet.
(1) Name, (2) Mobile Number & (3) Mail ID:

***NSLP Students and enrolled students:** Scan a copy of your answer sheet in PDF format and send it to:* ***sfmcertifiedcopy@gmail.com** for evaluation.*

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

1.The question paper comprises two parts, Section A and Section B.
2. Section-A Multiple Choice Questions (MCQs) carrying 2 marks each.
3. Section-B comprises questions which require descriptive type answers.

SECTION – A (Compulsory)

Question-1. Choose the correct option:

[15 × 2 =30]

i. Following information is available regarding a mutual fund:

S.D. of Market (σ_m)	10%
S.D. of Fund (σ_{MF})	12%
Correlation coefficient; $r_{m, MF}$	1.25
Risk Free Rate	8%
Jensen Alpha	3%
Market Return	10%

The Treynor Ratio of the mutual fund is

A. 4
B. 0.5
C. 2
D. 0.25

ii. An Indian Company is planning to invest in the US. The annual rates of inflation are 8% in India. If the spot rate is currently ₹60.50/$, & expected spot rate after 5 years is ₹76.68/$, the inflation rates of USA is

A. 2.5%
B. 3%
C. 4%
D. 5%

iii. An Indian company's cost of production is ₹40/unit while its export price is £ 1/ unit. If the ₹ depreciates by 10% and the spot rate today is ₹90 per £, what is the impact of transaction exposure?

A. Increase in profit by ₹9 per unit.
B. Decrease in profit by ₹9 per unit.
C. No change in revenue nor cost
D. Increase in profit by ₹10 per unit

iv. Which of the following option strategies involves holding a long position in a call option and a long position in a put option with the same strike price and expiration date?

A. Covered Call
B. Protective Put

C. Straddle
D. Iron Condor

v. Which of the following is an advantage to investors of exchange traded funds (ETFs) that is not available to investors in open-end mutual funds?

A. ETFs allow investors to invest in broad market indexes as well as international indexes
B. Investors can avoid incurring an expense in the form of a bid ask spread by purchasing an ETF rather than investing in an open-end mutual fund
C. ETFs offer a potential tax advantage to investors who incur capital gains taxes only when they sell ETF share
D. ETF prices cannot deviate from net asset value

vi. On March 1, 2023, the stock price of Cello Ltd. is ₹250. By the end of the day, it rises to ₹265. The March 2023 call option on Cello Ltd. starts at ₹25 and increases to ₹32. Considering these changes, what is the Delta of the call option on Cello Ltd.?
Additionally, if the stock price had instead fallen to ₹240 while the call option decreased to ₹21, what would the new Delta of the call option be?
A. 0.47 & 0.40
B. 2.14 & 2.50
C. 0.47 & -0.40
D. 2.14 & -2.50

vii. A characteristic line is formed by regressing
A. Stock prices with market index
B. Beta with required rate of return
C. Standard deviation with required rate of return
D. Stock returns with market returns

viii. The feature of the general version of the arbitrage pricing theory (APT) that offers the greatest potential advantage over the simple CAPM is the:
A. Identification of anticipated changes in production, inflation, and term structure of interest rates as key
B. factors explaining the risk return relationship.
C. Superior measurement of the risk-free rate of return over historical time periods.
D. Variability of coefficients of sensitivity to the APT factors for a given asset over time.

ix. Consider the information given below:
Rate of inflation = 6.2%
Beta = 0.75
Real rate of return = 4.7%
And market return = 12.6%
The risk premium for the above security will be-
A. 5.925%
B. 1.056%
C. 1.2%
D. 1.275%

x Buenos Aires Limited has 10 lakh equity shares outstanding at the beginning of the year 2013. The current market price per share is ₹150. The current market price per share is ₹150. The company is contemplating a dividend of ₹9 per share. The rate of capitalization, appropriate to its risk class, is 10%. Based on MM approach, calculate the market price of the share of the company when Dividend is declared.
A. ₹156
B. ₹166
C. ₹176
D. ₹186

xi. VATSAN LTD. is considering a project with the following expected cash flows:

Initial investment: ₹1,00,000

Year	1	2	3
Expected Cash Inflows	70,000	60,000	45,000

Due to uncertainty of future cash flows, the management decides to reduce the cash inflows to certainty equivalent (CE) by taking only 80% for 1st year, 70% for 2nd year and 60% for 3rd year respectively.

The cost of capital is 10%. NPV of the project is

A. 5905
B. 5378
C. -5905
D. None of the above

xii. Violation of a trend line means

A. Moving away from the trend line
B. Changing its direction
C. Penetration of the trend line
D. Cutting the rising trend line from above

xiii. What are the three dimensions of the digital finance cube, and how are they classified?

A. Investment, Revenue Generation, and Risk Management
B. Operations, Compliance, and Customer Service
C. Digital Finance Business Functions; Digital Finance Technologies & Technological Concepts; and Digital Finance Institutions
D. Data Analytics, Blockchain, and Cryptocurrencies

xiv. Moonlight mutual fund is an open-end fund with 50 lakhs units outstanding. You buy 2100 units today. The dividend and the closing NVA for 2 years are as follows.

Year	Dividend (₹)	NVA (₹)
Today	---	19
1	0.20	21
2	0.25	23

Calculate money weight rate of return (MWROR), if you reinvest dividends.

A. 23.53%
B. 11.146%
C. 10.46%
D. None of the above

xv. What are the key differences between Pass Through Certificates and Pay Through Certificates issued by a special purpose vehicle (SPV) in securitization transactions?

A. Pass Through Certificates have a single maturity structure, while Pay Through Certificates have multiple maturity structures.
B. Pass Through Certificates issue debt securities backed by transferred mortgages, while Pay Through Certificates transfer undivided interest on receivables.
C. Pass Through Certificates offer greater flexibility with varying maturity patterns, while Pay Through Certificates are matched with the life of the securitized assets.
D. Pass Through Certificates reinvest cash flows temporarily to bridge payment gaps, while Pay Through Certificates directly pass on cash flows from the underlying assets to investors.

SECTION – B

DESCRIPTIVE QUESTIONS

(Answer **any five questions** out of seven questions given. Each question carries 14 Marks.)

14×5=70

2. (a) HCP Ltd. is a leading manufacturer of railway parts for passenger coaches and freight wagons. Due to high wastage of material and quality issues in production, the General Manager of the company is considering the replacement of machine A with a new CNC machine B. Machine A has a book value of ₹ 4,80,000 and remaining economic life is 6 years. It could be sold now at ₹ 1,80,000 and zero salvage value at the end of sixth year. The purchase price of Machine B is ₹ 24,00,000 with economic life of 6 years. It will require ₹ 1,40,000 for installation and ₹ 60,000 for testing. Subsidy of 15% on the purchase price of the machine B will be received from Government at the end of 1st year. Salvage value at the end of sixth year will be ₹ 3,20,000. **10**

The General manager estimates that the annual savings due to installation of machine B include a reduction of three skilled workers with annual salaries of ₹ 1,68,000 each, ₹ 4,80,000 from reduced wastage of materials and defectives and ₹ 3,50,000 from loss in sales due to delay in execution of purchase orders. Operation of Machine B will require the services of a trained technician with annual salary of ₹ 3,90,000 and annual operation and maintenance cost will increase by ₹ 1,54,000. The company's tax rate is 30% and it's required rate of return is 14%. The company follows straight line method of depreciation. Ignore tax savings on loss due to sale of existing machine.

The present value factors at 14% are:

Years	0	1	2	3	4	5	6
PV Factor	1	0.877	0.769	0.675	0.592	0.519	0.456

Required:

(i) Calculate the Net Present Value and Profitability Index and advise the company for replacement decision.

(ii) Also calculate the discounted pay-back period.

2. (b) The closing price of the stock of veryfine Ltd at the stock exchange for 10 successive days was as follows: **4**

Day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Closing Prices (₹)	25	26	25	24	26	26	28	26	25	27

You are required to calculate a 7-days exponential moving average of stock price of the company and comment on its short-term trend.

3. (a) Following is the information related to return on shares of three different companies: **7**

Year	**A Ltd.**	**B Ltd.**	**C Ltd.**
2018	2%	3%	5%
2019	6%	8%	7%
2020	13%	14%	15%
2021	7%	9%	11%

Required:

(i) Construct maximum number of portfolio and it's return, if each portfolio consists of any two company's shares in proportion of 65% and 35% and suggest which provides highest return.

(ii) Calculate portfolio return and beta(β), if Mr. X invests ₹ 65,000 in A Ltd. having beta(β) of 0.45; ₹20,000 in B Ltd. having beta (β) of 1.15 and ₹ 15,000 in C Ltd. having beta(β) of 1.8

3. **(b)** The following quotes are available for 3 months options in respect of a share currently traded at ₹31. **7**

Strike price ₹30.00

Call option ₹3.00

Put option ₹2.00

An investor devises a strategy of buying a call and selling the share and a put option.

(i) What is his profit/loss profile if it is given that the rate of interest is 10% per annum?

(ii) What would the position if the strategy adopted is selling a call option and buying the share and a put option? [Given PVIF (10%, 0.25Years) = 0.9756]

4. **(a)** 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. **8**

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?

4. **(b)** ABC Ltd. has a capital budget of ₹ 2 crores for the year. From the following information relating to six independent proposals, select the projects if (i) the projects are divisible and (ii) projects are indivisible in order to maximise the NPV. **6**

Proposal	**Investment (₹)**	**NPV (₹)**
I	8,500,000	5,000,000
II	3,500,000	2,600,000
III	6,000,000	2,000,000
IV	4,000,000	2,500,000
V	6,000,000	5,000,000
VI	8,000,000	(2,500,000)

5. **(a)** A textile manufacturer has taken floating interest rate loan of ₹40,00,000 on 1st April 2012. The rate of interest at the inception of loan is 8.5 % p.a. interest is to be paid every year on 31st March, and the duration of loan is four years. **7**

(i) Suppose in the month of October 2012, the Central bank of the country releases following projections about the interest rates likely to prevail in future.

Date	**Rate of Interest**
On 31st March, 2013	8.75%
On 31st March, 2014	10.00%
On 31st March, 2015	10.50%
On 31st March, 2016	7.75%

Show how borrower can hedge the risk arising out of expected rise in the rate of interest when he wants to peg his interest cost at 8.50% p.a.

(ii) Assume that the premium negotiated by both the parties is 0.75% to be paid on 1st October, 2012 and the actual rate of interest on the respective due dates happens to be as follows:

Date	Rate of Interest
On 31st March, 2013	10.20%
On 31st March, 2014	11.50%
On 31st March, 2015	9.25%
On 31st March, 2016	8.25%

Show how the settlement will be executed on the perspective interest due dates.

5. (b) H Ltd. is an Indian firm exporting handicrafts to North America. All the exports are invoiced in US$. The firm is considering the use of money market or forward market to cover the receivable of $50,000 expected to be realized in 3 months' time and has the following information from its banker: **7**

	Exchange Rates
Spot	₹/$ 72.65/73
3m forward	₹/$ 72.95/73.40

The borrowing rates in US and India are 6% and 12% p.a. and the deposit rates are 4% and 9% p.a. respectively.

(i) Which option is better for H Ltd.?

(ii) Assume that H Ltd anticipates the spot exchange rate in 3 months' time to be equal to the current 3 months forward rate. After 3-months the spot exchange rate turned out to be ₹/$: 73/73.42.

(iii) What is the foreign exchange exposure and risk of H Ltd?

6. (a) Fund A has the following market value at the end of some successive years. **6**

Period (Years)	Market Value (₹)	Cash Flows (net) (₹)
0	1,000	-
1	1,100	100
2	1,200	150
3	1,300	80
4	1,500	-

Calculate Money Weighted Rate of Returns (MWROR) & Time-weighted Rate of Return (TWROR).

6. (b) 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%. **8**

(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	t1	t2	t3	t4	t5	t6	t7	t8	t9	t10
PVIF0.10,t	0.909	0.826	0.751	0.683	0.621	0.565	0.514	0.467	0.425	0.386
PVIF0.12,t	0.893	0.797	0.712	0.636	0.568	0.507	0.453	0.404	0.361	0.322
PVIF0.15,t	0.870	0.757	0.658	0.572	0.497	0.432	0.376	0.327	0.284	0.247

7. (a) M/s. Strong an AMC has floated a dividend bonus plan on 1st April, 2016 at a certain net asset value (NAV). The fund has a robust growth and has declared a bonus of 1:5 (1 bonus unit for 5 right units held) on 30th September 2017 and a second bonus of 1:4 (1 bonus unit for 4 right units held) on 30th September 2019. The fund, as on 31st March 2021, has generated an average yield of 17.5%. **6**

Mr. Optimistic has made an investment of ₹16 lakhs in the plan before the declaration of the first bonus and remain invested thereafter.

The following information is also available:

Date	**01.04.2016**	**30.09.2017**	**30.09.2019**	**31.03.2021**
NAV (₹)	?	85	92	100

You are required to advise to Mr. Optimistic the opening NAV, which is required by him to calculate the capital appreciation.

7. (b) A & Co. is contemplating whether to replace an existing machine or to spend money on overhauling it. A & Co. currently pays no taxes. The replacement machine costs ₹ 90,000 now and requires maintenance of ₹ 10,000 at the end of every year for eight years. At the end of eight years, it would have a salvage value of ₹ 20,000 and would be sold. The existing machine requires increasing amounts of maintenance each year and its salvage value falls each year as follows: **8**

Year	**Maintenance**	**Salvage**
Present	0	40000
1	10,000	25,000
2	20,000	15,000
3	30,000	10,000
4	40,000	0

The opportunity cost of capital for A & Co. is 15%

Required:

When should company replace the machine?

(Note: Present value of an annuity of ₹1 per period for 8 Years at interest rate of 15%: 4.4873; Present value of ₹1 to be received after 8 years at interest rate of 15%: 0.3269)

8. (a) Differentiate between Traditional Finance vs. Digital Finance **5**

(b) Describe various types of securities issued by a SPV in securitization transactions. **6**

(c) Describe the Characteristics of Efficient Market **3**