

**Faculty of Management
Osmania University
Practical Question Bank
BBA (Business Analytics)
Semester VI w.e.f. 2021
COURSE CODE: DSE - 603
COURSE: (A) FINANCIAL ANALYTICS – II (F)**

Total Marks: 35

**Record : 10 Marks
Practical's : 15 Marks
Viva Voice: 10 Marks**

Record Work:

- 1. Input: Students must write the procedure/steps for the given question /problem.**
- 2. Process: Students must write Steps/ Navigations to execute**
- 3. Output: Students must show the Result/Output and interpret the results.**
- 4. Use Excel**

1. Prepare a proforma of CASH Budget (Monthly Basis) for the year 2024 of a listed company.
2. For the data given below perform date and time functions.

Transaction ID	Transaction Date	Payment Due Date	Delivery Date
T001	2024-01-01 00:00:00	2024-01-10 00:00:00	2024-01-05 00:00:00
T002	2024-01-15 00:00:00	2024-01-25 00:00:00	2024-01-20 00:00:00
T003	2024-02-01 00:00:00	2024-02-10 00:00:00	2024-02-05 00:00:00
T004	2024-02-15 00:00:00	2024-02-25 00:00:00	2024-02-20 00:00:00
T005	2024-03-01 00:00:00	2024-03-10 00:00:00	2024-03-05 00:00:00
T006	2024-03-15 00:00:00	2024-03-25 00:00:00	2024-03-20 00:00:00
T007	2024-04-01 00:00:00	2024-04-10 00:00:00	2024-04-05 00:00:00
T008	2024-04-15 00:00:00	2024-04-25 00:00:00	2024-04-20 00:00:00
T009	2024-05-01 00:00:00	2024-05-10 00:00:00	2024-05-05 00:00:00
T010	2024-05-15 00:00:00	2024-05-25 00:00:00	2024-05-20 00:00:00
T011	2024-06-01 00:00:00	2024-06-10 00:00:00	2024-06-05 00:00:00
T012	2024-06-15 00:00:00	2024-06-25 00:00:00	2024-06-20 00:00:00
T013	2024-07-01 00:00:00	2024-07-10 00:00:00	2024-07-05 00:00:00
T014	2024-07-15 00:00:00	2024-07-25 00:00:00	2024-07-20 00:00:00
T015	2024-08-01 00:00:00	2024-08-10 00:00:00	2024-08-05 00:00:00


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- a. Extract the year from the "Transaction Date" column and place it in a new column.
 - b. Extract the full month name from the "Transaction Date" column.
 - c. Extract the day of the month from the "Delivery Date" column.
 - d. Find the day of the week (e.g., Monday, Tuesday) for each "Payment Due Date."
 - e. Calculate the number of days between the "Transaction Date" and "Delivery Date."
 - f. Add 15 days to each "Transaction Date" to determine a hypothetical revised delivery date.
 - g. Calculate the delay (in days) between the "Payment Due Date" and the "Delivery Date."
 - h. Identify the quarter (e.g., Q1, Q2) of the year for each "Transaction Date."
 - i. Find the last day of the month for each "Transaction Date."
 - j. Calculate the week number of the year for each "Delivery Date."
3. For the data given above perform time functions
- a. Using the WORKDAY function, calculate the next working day after 10 business days from the "Transaction Date." Assume weekends are non-working days.
 - b. Calculate the total number of working days between the "Transaction Date" and "Payment Due Date," excluding weekends.
 - c. Calculate the difference in months between the "Transaction Date" and "Payment Due Date."
 - d. Use the NOW function to generate the current date and time, and compare it with the "Delivery Date" to find overdue orders.
 - e. Use the EDATE function to calculate a future due date by adding 6 months to the "Payment Due Date."
 - f. Create a custom column to flag transactions that are overdue by more than 30 days using an IF function.
4. From the data given in Question 2, Calculate the durations of
- Calculation-Based Questions**
- a. Calculate the number of days between the "Transaction Date" and "Payment Due Date" for each transaction.
 - b. Determine the number of months between the "Transaction Date" and "Delivery Date."
 - c. Calculate how many years have passed since the "Transaction Date" for each transaction, assuming today's date.
 - d. Add 45 days to each "Transaction Date" to find the projected due date for an extended payment period.
 - e. Convert the number of days between the "Transaction Date" and

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"Delivery Date" into weeks (round to 2 decimal places).

5. From the data given in Question 2, Calculate the durations of

Calculation-Based Questions

- a. If the "Delivery Date" exceeds the "Payment Due Date" by more than 7 days, flag it as "Late Payment" in a new column.
 - b. Calculate the average number of days between the "Transaction Date" and "Delivery Date" for all transactions.
 - c. Calculate the midpoint date between the "Transaction Date" and the "Payment Due Date."
 - d. Calculate the total working days (excluding weekends) between the "Transaction Date" and "Payment Due Date."
 - e. If a customer has to pay in 3 equal monthly installments starting from the "Payment Due Date," calculate the payment schedule dates.
6. For the table given in Q2, find
- a. If a service contract starts on the "Transaction Date" and lasts for 3 years, calculate the exact contract expiry date.
 - b. If a company faces a penalty of ₹500 per day for delayed payments beyond the "Payment Due Date," calculate the penalty for each late transaction.
 - c. Calculate the cumulative total of days between "Transaction Date" and "Delivery Date" for all transactions.
 - d. For a 28-day billing cycle starting from the "Transaction Date," identify the next three billing dates.
 - e. If payments are due 30 calendar days after the "Transaction Date" but should shift to the next working day if the due date falls on a weekend, calculate the adjusted due dates.

7. The following forecasts have been made for ABC Ltd. For the period January to April 2021.

Particulars	January	February	March	April
Sales	75000	105000	180000	105000
Raw Materials	70000	100000	80000	85000
Manufacturing Expenses	10000	20000	29000	16000
Loan Instalment	1000	11000	21000	21000

Additional information:

- a. All sales are made on the credit basis. 2/3 debtors are collected in the

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same month and balance in the next month. There is no expected bad debt. The debtors on January 1, 2021 were Rs. 30000.

- b. The minimum cash balance, the firm must have is estimated to be Rs. 5000, however, the cash balance on January 1 was Rs. 6500.
- c. Borrowing if any, can be made in multiple of Rs. 100 only.

Prepare the cash budget for the period of 4 months (ignore interest on borrowings)

8. You are required to find out the Cash inflows and cash outflows for the first six months on the basis of the following information: Sales on credit, variable costs and wages are budgeted as follows(the November and December figures of the previous year being the actual figures for those months).

Month	Credit sales	Variable cost	Wages
Nov-20	10000	7000	1000
Dec-20	12000	7500	1100
Jan-21	14000	8000	1200
Feb-21	13000	7700	1000
Mar-21	10000	7000	1000
Apr-21	12000	7500	1100
May-21	13000	7750	1200
Jun-21	16000	8750	1300

Additional Information

Fixed expenses amount to Rs. 1500 per month, and the half year's preference dividend of Rs. 1400 is due on June 30.

Advance tax amounting to Rs. 8000 is payable in January and progress payment under a building contract are due as follows: March 31, Rs. 5000 and May 31, Rs. 6000.

Variable costs are payable in the month following that in which they are incurred, and 50% are subject to 2 ½ discount, and the balance are net. It is found that 75% of debtors to whom sales are made pay within the period of credit and the remainder do not pay until the following month. The company pays all its accounts promptly.

9. From the information and the assumption that the cash balance in hand on 1st January 2021 is Rs.72,500, prepare a cash budget. Assume that 50% of total sales are cash sales. Assets are to be acquired in the months of February, and April. Therefore, provisions should be made for the payments of Rs. 8000 and Rs. 25000 for the same. An application has been made to the bank for the grant of a loan of Rs. 30000 and it is hoped that loan amount will be received in the month of May. It is anticipated that the dividend of Rs. 35,000 will be paid

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in June. Debtors are allowed one month's credit. Creditors for materials purchased and overheads grant one month's credit. Sales commission at 3% on sales is paid to the salesman each month.

Month	Sales	Material Purchases	Salaries & Wages	Production Over-heads	Office and Selling overheads
January	72000	25000	10000	6000	5500
February	97000	31000	12100	6300	6700
March	86000	25500	10600	6000	7500
April	88600	30600	25000	6500	8900
May	102500	37000	22000	8000	11000
June	108700	38800	23000	8200	11500

10. Lal & Co has given the forecast sales for January 2020 to July 2020 and actual sales for November and December 2019 as under. With the other particulars given, prepare a cash budget for the months, from January to May 2020.

(i)

Sales	
Nov-19	160000
Dec-19	140000
Jan-20	160000
Feb-20	200000
Mar-20	160000
Apr-20	200000
May-20	180000
Jun-20	240000
Jul-20	200000

- (ii) Sales 20% Cash, and 80% credit, credit period has two months.
 (iii) Variable expenses 5% on turnover, time lag of half month.
 (iv) Commission 5% on credit sales payable in two months.
 (v) Purchases are 60% of the sales. Payment will be made 3rd month of purchases.
 (vi) Rent Rs. 6000 paid every month.
 (vii) Other payments : Fixed assets purchases – February Rs. 36000 and March Rs. 100000 ; Taxes – April Rs. 40000.
 (viii) Opening cash balance Rs. 50000

11. The following figures relate to one year work in a manufacturing business:

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	I n R s
Particulars	.
	1
	2
	0
	0
Fixed Overheads	0
	2
	0
	0
Variable Overheads	0
	1
	5
	0
	0
Direct Wages	0
	4
	1
	0
	0
Direct materials	0
	1
	0
	0
	0
	0
Sales	0

Represent each of the above figures on a break even chart and determine from the chart the break even point.

12. From the following particulars,
a. Draw a break even chart and find out break even point.

	3
Variable cost per unit	0
	1
	0
	0
	0
	0
Fixed expenses	0

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Selling Price per unit	5 0
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- b. What should be the selling price per unit if the breakeven point should be brought down to 4000 units.
- c. If the present value of sales is Rs. 400000, what is the margin of safety based on the data given.
- d. What should be the selling price per unit if the break-even point should be 6500 units.
13. From the following results of a company, determine by how much the value of the sales must increase by the company to break even. use goal seek.
- (i) Net sales: 4,00,000 Fixed costs: 2,00,000 Variable cost 2,40,000.
- (ii) Net Sales : 10,000, Fixed Costs: 600000, Variable cost 450000
- (iii) Also draw present the data graphically.

14. An analysis of costs of a company led to the following information.

	Variable cost	Shutdown cost
Direct materials	33.6	Nil
Direct labour	28.4	Nil
Factory over head	11.6	166700
Distribution expenses	3.3	63,400
General and administration expenses	1.1	99000
Budgeted sales for the next year 2000000		

You are required to determine

- a. The break even sales volume using goal seek.
- b. The profit at the budgeted sales volume.
- c. The profit if actual sales (a) drop by 12.5% (b) increase by 10% d. sales to generate a profit of Rs. 320000.
15. For the following data

Initial Projections	
Selling price per unit	10.25
Units sold	15000
Cost per unit	5
Variable costs	15000
Fixed costs	20000

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Profit	1250
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- Find break even point for volume using goal seek.
- Find break even point for selling price.
- Find break even for cost per unit.
- What will be the sales if the profit should increase by 15%.

16. Calculate the break even point using scenario analysis for the data given below.

Scenario	Fixed Costs	Selling Price per Unit	Variable Cost per Unit
Base Case	\$50,000	\$50	\$30
Best Case	\$45,000	\$60	\$25
Worst Case	\$60,000	\$40	\$35
Optimistic Case	\$40,000	\$55	\$28
Pessimistic Case	\$70,000	\$45	\$40

17. Assuming the fixed costs to be Rs. 50000, and from the given data

Scenario	Variable Cost per Unit	Selling Price per Unit	Sales Volume	Interest Expense
Base Case	\$30	\$50	5,000	\$10,000
Best Case	\$25	\$60	6,000	\$10,000
Worst Case	\$35	\$40	4,000	\$10,000
Optimistic Case	\$28	\$55	5,500	\$10,000
Pessimistic Case	\$40	\$45	4,500	\$10,000

- Calculate contribution margin
- Calculate operating income (EBIT)
- Calculate Operating leverage
- Calculate Financial Leverage
- Calculate Net Income
- Interpret your results.

18. The data relating to two companies are given below:

Particulars	Company A	Company B
Capital	600000	350000

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Debentures	400000	650000
Output (units) per annum	60000	15000
Selling Price per unit	30	250
Fixed costs per annum	700000	1400000
Variable cost per unit	10	75

You are required to calculate the operating leverage, Financial leverage and combined leverage of two companies and interpret the results.

19. For the above data apply scenario analysis
- Output increased or decreased by 10%
 - Selling price by adjusting $\pm 12\%$ to see how it affects the key metrics
 - Variable costs by adjusting $\pm 10\%$ to evaluate the impact on leverage
 - Fixed costs by $\pm 10\%$ to observe the influence on leverages.

- 20 XYZ & Co has three financial plans before it. Plan I, Plan II and Plan III. Calculate the operating, financial and combined leverage for the firm based on the following information and also find out the highest and lowest value of combined leverage.

Production	800 Units
Selling price per unit	Rs. 15
Variable Cost per unit	Rs 10
Fixed cost :	
Situation A	Rs. 1000
Situation B	Rs. 20000
Situation C	Rs. 3000

Capital Structure	Plan I	Plan II	Plan III
Equity Capital	Rs 5000	Rs. 7500	Rs. 2500
12% debt	5000	2500	7500

- 21 An investment of ₹50,000 is made at an annual interest rate of 8%, compounded quarterly, for 5 years. Calculate the Future Value (FV) and the Present Value (PV) using Excel formulas.

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22. The choice is to be made between two competing projects which require an equal investment of Rs. 50000 and are expected to generate net cash flows as under

	Project 1	Project 2
End of year 1	25000	10000
End of year 2	15000	12000
End of year 3	10000	18000
End of year 4	0	25000
End of year 5	12000	8000
End of year 6	6000	4000
cost of capital	10%	

The cost of capital of the company is 10%. Compute the Net Present value and Internal Rate of Return and suggest which project is acceptable.

23. Consider an investment in a project that requires an initial investment of ₹100,000. The project will generate equal annual cash flows of ₹25,000 for the next 6 years. The cost of capital is 8%.
1. Calculate the Net Present Value (NPV) of the project.
 2. Calculate the Internal Rate of Return (IRR) of the project.
 3. Should you accept the project if the cost of capital is a) 8% b) 10% c) 12%?

24. XYZ Ltd is evaluating a project having following series of cash flows:

Period	Cashflows
C0	-290
C1	175
C2	225
C3	175
C4	200
C5	-500
Interest rate	10%

Find out the NPV and IRR of the project.

If the discount rates ranges from 0% to 45%, calculate NPVs and draw a suitable graph.

25. The following are the details of the project.
 Initial outlay Rs. 80000
 Initial working capital Rs.20000
 Cash flows before depreciation and taxes:

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1st year Rs. 35000

2nd year Rs. 35000

3rd year Rs. 30000

4th year Rs. 30000

5th year Rs. 20000

The project is depreciable on straight line basis. If the required rate of return is 10% which is the project acceptable under the NPV and IRR criteria? Tax rate is 50%.

26. A firm is contemplating the following projects. Which one is better according to you?

Year	Project A	Project B
0	-100000	-100000
1	25000	35000
2	24000	20000
3	23000	24000
4	20000	23000
5	15000	18000

Closing NPV, Profitability Index and pay back period evaluate the projects assuming a 10% discount rate.

27. A firm whose cost of capital is 10% is considering two mutually exclusive projects A and B, the details of which are

Particulars	Project A	Project B
Investment	70000	70000
Cash flows		
Year - 1	10000	50000
Year - 2	20000	40000
Year - 3	30000	20000
Year - 4	45000	10000
Year - 5	60000	10000

Compute the NPV at 10% and suggest the best project.

28. Calculate Internal rate of return and Net present value for the following data.

Values	Dates
-20000	Jan,1,2018
5500	Mar,1,2018
8500	Oct,30,2018

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6500	Feb,1,2019
5500	Apr,1,2019

With 9% rate of interest.

29. XYZ Ltd has two proposals, A and B out of which one is to be selected by financial modelling. Necessary information for these projects is given:

Particulars	Period	Project A	Project B
Cost of project		600000	800000
Cash Flows	Year 1	200000	240000
	Year 2	200000	290000
	Year 3	250000	350000
	Year 4	300000	400000
	Year 5	3500000	450000
	Year 6	2500000	470000
Required rate of return		14%	14%

30. Which of the following two proposals is riskier? Calculate and give your opinion using sensitivity analysis for selecting one of the proposals.

Particulars	Machine X	Machine Y
Cost	5000000	5000000
Pessimist	800000	100000
Most Likely	1000000	500000
Optimistic	12000000	2500000

Cash flows is to be estimated for 10 years and the cost of capital is 14%.

31. Rao and Co., provides the following estimates to the present values of the future expected cash flows after taxes associated with investment proposal relating to the plant expansion.

PVCFAT		
Without expansion	With expansion	Probability
200000	450000	0.2
350000	700000	0.3
500000	500000	0.5

The plant expansion costs Rs. 400000. You are required to advice Rao and Co, regarding the financial feasibility on the investment with the use of decision tree approach.

32. An investment requires an initial outlay of ₹100,000 and generates the following cash flows over 5 years:
 ₹20,000, ₹30,000, ₹40,000, ₹50,000, and ₹60,000.
 The cost of capital is 10%.

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Calculate NPV and IRR using

- If cash flows increase by 20% or decrease by 20%.
- If the cost of capital varies from 3% to 30%.
- Find the cash flow in Year 3 that makes the NPV equal to ₹50,000.

33. The following are the details of a bond of a company.

Parameter	Value
Face Value	₹1,000
Coupon Rate	8%
Market Price (at purchase)	₹950
Maturity Period	5 Years
Call Price (if callable)	₹1,050
Call Period	3 Years

Calculate the following in excel.

- Nominal yield
- Current yield
- Holding period return
- Yield to Maturity
- Approximate yield to maturity
- Yield to call

34. The following are the details of a bond of a company.

A company issues a **10-year bond** with the following details:

- Face Value:** ₹1,000
- Coupon Rate:** 8% (semi-annual payments)
- Issue Price:** ₹920 (discounted bond)
- Callable after:** 4 years at ₹1,080 (call premium included).
- Market Price after 3 years:** ₹970
- Current Market Price:** ₹1,050
- Holding Period:** Assume you hold the bond for 3 years.

Calculate the following in excel.

- Nominal yield
- Current yield
- Holding period return
- Yield to Maturity
- Approximate yield to maturity
- Yield to call

35. Calculate the YTM and AYT of the following bonds:

- A 15% 10 year bond with a current market price of Rs.680

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(ii) A 7% , 15 Year bond with current market price of Rs. 750
Compare both the bonds and give your inferences.

36. Calculate Macaulay's Duration of a three year bond that has a par value Rs. 2000, Coupon rate 15% annual and YT 10% and maturity 3 years.
37. Calculate Macaulay's Duration of a bond whose face value if Rs. 2000 with a coupon rate of 12% and 18 years to maturity. Assume market capitalization (YTM) as 10%. And the interest is paid semi annually.
38. For the data given below:

	Bond A	Bond B
Face value	1000	1000
Coupon Rate	10%	10%
Maturity	5	5
YTM	12%	14%

- (i) Prove that yield to maturity is inversely related to price of the bond for the following data.
- (ii) With yield 15% , and maturity 3 years and 6 years for Bonds A and B, then prove that the larger the period, the greater will be the price change.
39. Consider a bond with face value of Rs. 1000 and carrying a coupon rate of 10%. Calculate the market value of a bond with maturities 3,5,and 8 years at YTM 12% and 14%.
40. The face value of a bond is Rs. 1000. Coupon rate is 10%. Period for maturity is 5 years. Calculate the market value of the bond, when the YT is 12%? Calculate the capital gain/loss. When YTM changes to 8% and 16%. Which bond theorem's these results substantiate.

41. Consider the following data:

	Bond A	Bond B
Face Value	1000	1000
Maturity	5	5
CR	10%	12%
YTM	12% & 14%	12% & 14%

Calculate price of a bond A and Bond B when the YTM is 12% and 14%.

42. XYZ Ltd. is a company that has been paying consistent dividends to its shareholders. The company's stock price and dividends are expected to grow in the future based on its historical growth rates. Using the Dividend Discount

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Model (DDM), calculate the **intrinsic value** of the stock and analyze if it is undervalued or overvalued compared to its current market price.

43. The latest dividend paid on the equity of firm is Rs. 1.11 per share and these dividends are expected to grow at a superior growth rate of 9% p.a. for the next four years. Later the growth rate in dividends is expected to normalize to 4%p.a. till distant future. Assuming an equity capitalization rate of 10%, find the intrinsic value of the share.
44. From the following information – the earnings of a firm are growing at 10% p.a. and this growth is expected to continue for a long period. The latest EPS of the firm is Rs.5.80. The required rate of return is 15% and the retention ratio is 50%. Find the intrinsic value of the share today, after 2 years and after 5 years.
45. Determine beta and Alpha of Bajaj Auto from the following data:

Bajaj Auto	NSE Index
597.50	904.95
570.80	845.75
582.95	874.25
559.60	849.15
545.10	835.80
519.15	816.75
560.70	843.55
560.95	835.55
597.45	839.55
600.15	850.60

46. Given $r_f = 6\%$ and $\bar{r}_m = 15\%$ and expected returns and expected betas are as follows:

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Stock	Expected Returns	Expected Betas
A	14%	1.2
B	15%	0.75
C	13%	1.5
D	20%	1.32
E	8%	0.9
F	12%	1.22
G	10.50%	0.85
H	11.25%	0.74

Which stock is overvalued and which is undervalued, related to expected return?

47. Assume yourself as portfolio manager and with the help of the following details, find out the securities that are over priced, and underpriced in terms of SML.

Stock	Expected Returns	Expected Betas	Alpha
A	0.33	1.70	0.50
B	0.13	1.40	0.35
C	0.25	1.10	0.40
D	0.12	0.95	0.24
E	0.21	1.05	0.28
F	0.14	0.70	0.18
Nifty Index	0.13	1.00	0.20
T-Bills	0.09	0.00	0.00

48. A portfolio consists of 40% of Security X and 60% of security Y. It has the following probability distribution of returns. Calculate the portfolio return and risk.

State	Probability	Ret.X(%)	Ret. Y(%)
Boom	0.1	14	20
Recession	0.2	-5	-2
Normal	0.4	10	9
Recovery	0.1	9	14
Slow Growth	0.2	12	18

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49. From the following data provided by Mr. Ajay, who have invested 40% in Security X, 35% in Y and 25% in Z by forming a portfolio. The risk and return of the securities is given below:

	X	Y	Z
Return	12%	14%	10%
Risk	8%	12%	14%

Calculate the risk and return of the portfolio.

50. Find the variance and standard deviation of a portfolio of 3 securities P, Q and R with the following characteristics.

Security	Standard	Correlation	Weight
P	7	P & Q = 0.7	0.35
Q	16	P & R = 0.3	0.25
R	9	Q & R = 0.4	0.4

What would be the variance and the standard deviation if each security has equal weightage.

51. An investor has identified 3 assets A,B and C and a risk free asset D, which he wants to include in a portfolio. He is considering different combinations of the assets. Find the expected return and standard deviation of each combination from the following:

Asset	Expected Return(%)	Risk (%)	Correlation Coefficient
Asset	12	8	A&B =0.8
B	10	5	A & C = 0.2
C	8	7	B & C = 0.5
D	4	0	

The combinations are,

- Portfolio 1: invest all funds in risk free asset
 Portfolio 2: Invest equal amounts in A, B and C
 Portfolio 3: Invest in 75% in B and 25% in C
 Portfolio 4: Invest in 50% in A and 50% in B
 Portfolio 5: Invest all funds in A.

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