Multiple Choice Questions (45%)

Choose the Correct Answer

1	A
2 - I	D
2 - II	B
2 - III	D
3	D
4	B
5	D
6	A
7	D
8	B
9	D
10	B
11	A
12	B
13	B

14	B
15	B
16	C
17	C
18	B
19	C
20	C
21	C
22	D
23	B
24	D
25	D
26	A
27	B
28	C

Exercises (55 %)

Exercise I:

1- Sales budget for the second quarter of year N:

	March	**April**	**May**
Sales	**$385,000**	**$385,000**	**$420,000**

2- Purchases budget for the second quarter:

	April	**May**	**June**
Purchases	**$220,000**	**$220,000**	**$240,000**
Other expenses relevant to purchases	**$2,200**	**$2,200**	**$2,400**
Total	**$222,200**	**$222,200**	**$242,400**

3- Schedule of expected cash collection:

	April	May	June
Sales of March	**$175,000**		
Sales of April	**$192,500**	**$192,500**	
Sales of May		**$192,500**	**$192,500**
Sales of June			**$210,000**
Sales of fixed assets		**$3,000**	**$3,000**
Total	**$367,500**	**$388,000**	**$405,500**

4- Schedule of expected payment:

	April	May	June
Purchases of March (1)	**$151,500**		
Purchases of April (2)	**$55,550**	**$166,650**	
Purchases of May (3)		**$55,550**	**$166,650**
Purchases of June (4)			**$60,600**
External expenses	**$30,000**	**$31,000**	**$35,000**
Personnel expenses	**$60,000**	**$60,000**	**$67,000**
Taxes and fees			**$3,000**
Purchase of transport vehicle		**$35,000**	
Total	**$297,050**	**$348,200**	**$332,250**

5- Cash budget:

	April	May	June
Cash account at month beginning	**$85,000**	**$155,450**	**$195,250**
Cash collection of the month	**$367,500**	**$388,000**	**$405,500**
Payments of the month	**$297,050**	**$348,200**	**$332,250**
Cash balance	**$155,450**	**$195,250**	**$268,500**

Exercise II:

1. The annual net cash inflow can be computed by deducting the cash expenses from sales:

Sales	**$3,000,000**
Variable expenses	**1,800,000**
Contribution margin	**1,200,000**
Advertising, salaries, and other fixed out-of-pocket costs	**700,000**
Annual net cash inflow	**$ 500,000**

Or the annual net cash inflow can be computed by adding depreciation back to net operating income:

Net operating income	**$200,000**
Add: Noncash deduction for depreciation	**300,000**
Annual net cash inflow	**$500,000**

2. The net present value is computed as follows:

Item	Year(s)	Amount of Cash Flows	12% Factor	Present Value of Cash Flows
Cost of new equipment	Now	$(2,400,000)	1,000	$(2,400,000)
Annual net cash inflow	1—8	$500,000	4,968	2,484,000
Net present value				$ 84,000

Yes the project is acceptable because it has a positive net present value.

3. The formula for computing the factor of the internal rate of return is:

$$\text{Factor of the internal rate of return} = \frac{\text{Investment required}}{\text{Annual net cash inflow}}$$

$$= \frac{\$2,400,000}{\$500,000} = 4{,}800$$

A factor of 4,800 represents a rate of return of about 13%

4. The formula for the payback period is:

$$\text{Payback period} = \frac{\text{Investment required}}{\text{Annual net cash flow}}$$

$$= \frac{\$2,400,000}{\$500,000} = 4.8 \text{ years}$$

Exercise III

R = Stock A = (-5%)(.2) + (20%)(.6) + (40%) (.2) = 19%

Stock B = (10%)(.2) + (15%) (.6) + (20%) (.2) = 15%

Stock A

Return (r_i)	Probability (p_i)	(step 1) $r_i p_i$	(step 2) $(r_i - \bar{r})$	(step 3) $(r_i - \bar{r})^2$	$(r_i - \bar{r})^2 pi$
–5%	.2	–1%	–24%	576	115.2
20	.6	12	1	1	.6
40	.2	8	21	441	88.2
		$\bar{r}$ = 19%			σ^2 = 204
				(step 4)	$\sigma = \sqrt{204}$
					σ = 14.18%

Stock B

Return (r_i)	Probability (p_i)	(step 1) $r_i p_i$	(step 2) $(r_i - \bar{r})$	(step 3) $(r_i - \bar{r})^2$	$(r_i - \bar{r})^2 pi$
10%	.2	2%	–5%	25	5
15	.6	9	0	0	0
20	.2	4	5	25	5
		$\bar{r}$ = 15%			σ^2 = 10
				(step 4)	$\sigma = \sqrt{10}$
					σ = 3.16%

Using the following data, we can compute the coefficient of variation for each stock as follows:

	Stock A	Stock B
$\bar{r}$	19%	15%
σ	14.28%	3.16%

The coefficient of variation is computed as follows:

For stock A,

$$\sigma/\bar{r} = 14.18/19 = .75$$

For stock B,

$$\sigma/\bar{r} = 3.16/15 = .21$$

Although stock A produces a considerably higher return than stock B, stock A is overall more risky than stock B, based on the computed coefficient of variation.

Exercise IV

A)

	L	XL	XXL	TOTAL	
sales mix	**5/17**	**3/17**	**9/17**	**(=A+B+C)**	
sales	**$ 500,000**	**$ 300,000**	**$ 900,000**	**$ 1,700,000**	**100.000%**
variable expenses	**$ 300,000**	**$ 210,000**	**$ 720,000**	**$ 1,230,000**	**72.353%**
CM	**$ 200,000**	**$ 90,000**	**$ 180,000**	**$ 470,000**	**27.647%**
fixed costs				**$ 250,000**	**calculated**
budgeted operating income for month				**$ 220,000**	**given**

breakeven sales $ = fixed costs / CM ratio = $250,000 / .27647 = $904,257

B)
MOS (in sales $) = total budgeted (or actual) sales $ - breakeven sales $ =
= $1,700,000 - $904,257 = $795,743

C)
degree of operating leverage = CM / operating income = $470,000 / $220,000 = 2.13636

D)
sales $ required for target profit of $440,000 = (fixed costs + target income) / CM ratio
= ($250,000 + $440,000) / .27647

= $2,495,750

OR
% change in OI = % change in sales x operating leverage
thus % change in sales = 100% / 2.13636 = 46.809% (100% change in OI = double OI)
total sales dollars = % change in sales x current sales = 1.46809 x $1,700,000 = $2,495,753