INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT – SEMESTER-6

Marks

Question No. 1

(a) **Samran & Company:** It should be valued one-period dividend discount model for the following reasons: 01

- The firm has history of dividend payment 01
- The dividend policy is clear and related to earnings 01

Umair & Company: It should be valued using residual income model for the following reasons: 01

- The firm has no history of dividend payment 01
- It has negative free cash flows 01

Mansoor & Company: It should be valued using H-dividend Discount model for the following reasons: 01

- The firm has no competition now but it will increase going forward 01
- Growth is expected to decline steadily with the onset of competition 01

Awais & Company: It should be valued using two-stage dividend discount model for the following reasons: 01

- Firm has two growth stages in its future years 01
- One rate of growth before the patent expires and another rate thereafter 01

(b) Statement No. 1 is incorrect. All of Maria's description of initial growth stage is correct except that, in this stage, cash flows to equity are actually negative. This is due to the heavy capital investment. 1½

Statement No. 2 is correct. The terminal value in the three-stage dividend growth model can be estimated using either approach. 1½

(c) H-Dividend Discount Model is appropriate for the company as the initial high rate of dividend steadily declines over a specified period: 01

$$V=\frac{D_o\ 1+gl\ +D_o \times H\ \ gs-gl}{r-gl} \qquad 01$$

$$V=\frac{3.25\ \ 1.06\ +3.25 \times 3\ (0.2-.06)}{0.175-0.06}\ =\ 41.83 \qquad 03$$

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(d) Ratio of P/E of PVGO to P/E of the Karachi Energy Limited:

$Value = \frac{EPS}{r} + PVGO$ 01

PVGO= $Value - \frac{EPS}{r}$ 01

PVGO= $85 - \frac{5}{0.175}$ = 56.42 01

Ratio of leading P/E of the firm = $\frac{85}{5}$ = 17 01

Ratio of P/E of PFGO= $\frac{56.42}{5} = 11.28$ 01

Ratio of P/E of PVGO to leading P/E = $\frac{11.28}{17}$=0.66

(e) Direct investing: In direct investing, investor becomes owner of invested property. For example, when investor purchases real estate or any security or shares of the company. Direct investing may be in the marketable instruments like treasury bills, shares or bond, or it may be in non-marketable instruments like saving accounts or deposits. 03

Indirect investing: In indirect investing, investor buys the instruments of an investment vehicle, which in turns owns the shares of different companies. Indirect investing is undertaken through mutual funds, or trust accounts. Unit trusts, open-ended and close-ended mutual funds, and exchange trade funds are example of indirect investing. 03

(f) Management fee payable by DAF to asset management company is as under:

	Rs. '000'	
Market value of fund's investment	180,000	
Accounts receivable	13,000	
Accrued income on fund's investment	12,000	
Total assets	205,000	01
Less: Liabilities	7,000	
Less: Accrued expense	8,000	
Total liabilities	15,000	01
NAV before charging management fee	190,000	01
Management fee at the rate of 1.5%	2,850	01

(g) Closing NAV per unit:

	Rs. '000'	
NAV before charging management fee (from part 'f')	190,000	½
Less: Management fee @ 1.5%	2,850	½
NAV after charging management fee	187,150	01
Number of units outstanding	10,000	
NAV per unit	18.72	01

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(h) Return for the year to the unit holders of DAF is computed as under:

Closing NAV per unit	A	18.72	½
Opening NAV per unit	B	17.56	½
Dividend paid to unit holders during the year	C	1.00	½
Return for the year.	$\frac{A+C-B}{B}$	12.30%	½

Question No. 2

(a) Present value of amount of gain or loss:

Rupees

Description	Committee members				
	Akram	Bashir	Cheema	David	
Order of inflow	3	1	4	2	
Present value of inflow discounted @ 4% per quarter (w-1)	1,777,993	1,923,077	1,709,608	1,849,112	02
Present value of quarterly outflow in form of contribution to committee discounted @ 4% per quarter (w-2)	1,814,948	1,814,948	1,814,948	1,814,948	02
Present value of Gain/(loss)	(36,955)	108,129	(105,339)	34,165	02
(w-1) Formula	$\frac{2,000,000}{(1.04)^3}$	$\frac{2,000,000}{(1.04)^1}$	$\frac{2,000,000}{(1.04)^4}$	$\frac{2,000,000}{1.04^{\ 2}}$	01
(w-2) Formula	$\frac{500,000}{0.04}\ 1-\frac{1}{(1.04)^4}$	$\frac{500,000}{0.04}\ 1-\frac{1}{(1.04)^4}$	$\frac{500,000}{0.04}\ 1-\frac{1}{(1.04)^4}$	$\frac{500,000}{0.04}\ 1-\frac{1}{(1.04)^4}$	01

(b) Extra amount of tax = 7.5% of accumulated withdrawals on maturity 01

Only first 5 coupons get reinvested; as the last coupon coincides with the maturity of the certificate. 01

Accumulated amount of first 5 coupons at the end of 2.5 year = $\frac{59,500}{0.0595}\ (1.0595)^5 - 1$ 02

= Rs.335,072 ½

Accumulated amount at 3-year end= $335,072(1.063)^1 + 63,000$ = Rs.419,182 1½

Extra tax = 7.5% x 419,182 = Rs.31,439 01

Question No. 3

(a) Bond Value (12%) = 30 / (1.06) + 30/$(1.06)^2$ + 30/$(1.06)^3$ + 30/$(1.06)^4$ + 30/$(1.06)^5$ + 30/$(1.06)^6$ + 1000/$(1.06)^6$ 02

= 147.5 + 704.95 01

= Rs.852.5 01

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(b) Characterization of issues is as under:

Issue	Annual coupon rate	Annual market yield	Characterization	Reason	
1	5.25%	4.50%	Above	Yield is less than coupon rate	01
2	0%	6.0%	Below	Yield is greater than coupon rate	01
3	4.25%	4.25%	Par	Yield is equal to coupon rate	01

(c) Clean price = Full price – accrued interest 01

= Rs. 1,100 – Rs. 20* 01

= Rs. 1,080 01

* Accrued interest = 60 x 2 / 6 = 20 01

Question No. 4

(a) Having already paid Rs.400 to the ticket account Mr. Furqan will not pay additional Rs.400 to see the movie. He will not buy the ticket a second time. However, the lost bill of Rs.400 by Ms. Bushra can be accounted for in a variety of ways. The lost need not to be associated with the movie ticket. Economically, off course, both are out Rs.400 regardless of how they choose to look at things, but there is something about replacing the ticket that most of the people find unappealing. 05

(b) **(i)** T = $\frac{90}{365}$= 0.2466 01

$f_0(0.2466)= 91\ (1.065)^{0.2466}$ = 92.42 01

(ii) Storage cost must be add to the future price in (i) above :

$f_0(0.2466)$= 92.42+3.50= 95.92 01

(iii) Positive flow such as interest, or dividend, reduces the future price computed in the part (i) above :

$f_0(0.2466)$= 92.42-0.65= 91.77 01

(iv) Storage cost will be added and positive cash flow deducted from the :

$f_0(0.2466)$= 92.42+3.50-0.65= 95.27 02

(v) Arbitrage transaction:

- Sell future at 97 ½
- Buy the underlying asset at 91 ½
- Keeping in view time value of money, the asset price will inflate to 92.42 by the time of expiration of future contract ½
- At expiration the asset is delivered and amount of Rs. 97 is received ½

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- At expiration storage cost is paid i.e., 3.50 ½
- At expiration positive cash flow of 0.65 is received ½
- Riskless profit= 97-92.42-3.50+0.65= 1.73 01

Question No. 5

(a) (i) The return objective section of the IPS would be as under:

		Rupees	
	Monthly	Annual	
Salary income for coming year	225,000	2,700,000	01
Expenses:			
Tax @ 22.5%		607,500	½
Domestic expenses	200,000	2,400,000	01
Contribution to trust		65,000	½
Total		3,072,500	01
Amount to be met from portfolio income (salary income minus expenses)	A	372,500	01

(ii) Real rate of return:

Amount of windfall		8,500,000	
Accumulated savings till date		5,500,000	
	B	14,000,000	01
Real rate of return objective	C=A/B	2.66%	01

(iii) Nominal rate of return:

Real rate of return objective	C	2.66%	
Annual inflation rate	D	3.70%	01
Nominal return objective	C+D	6.41%	01

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(b) (i) Standard deviation for portfolio A,B,C and D may be computed by using sharp ratio and expected return (R_e):

Sharp ratio = $\frac{Expected\ return - Risk free\ rate}{Standard\ deviation}$

Standard deviation= $\frac{Expected\ return - Risk free\ rate}{Sharp\ ratio}$

Portfolio	Expected return **a**	Risk-free rate **b**	Sharp ratio **c**	Standard deviation **d=$\frac{a-b}{c}$**	
A	11.95%	4.00%	0.66	12.05%	01
B	10.75%	4.00%	0.70	9.64%	01
C	9.40%	4.00%	0.77	7.01%	01
D	7.00%	4.00%	0.80	3.75%	01

(ii) Roy's safety first ratio may be computed as under:

Portfolio	**Expected return** **a**	**Minimum acceptable return** **b**	**Standard deviation** **c**	**Roy's safety first ratio** **d=$\frac{a-b}{c}$**	
A	11.95%	-2.00%	12.05%	1.16	01
B	10.75%	-2.00%	9.64%	1.32	01
C	9.40%	-2.00%	7.01%	1.63	01
D	7.00%	-2.00%	3.75%	2.40	01

(iii) Portfolio D is recommended for the following reasons: ½

- Portfolio's return exceed Mr. Siraj return objective ½
- Highest safety first criterion ½
- Highest sharp ratio ½

THE END