QUESTIONS

NUMBER ONE

a)   Explain the main reasons why multi-national companies (MNC) seek foreign investment.
       (6 marks)

b)   Explain the types of political risks that face multi-national firms in foreign countries.
       (6 marks)

c)   How can a MNC protect itself against political risk?   (8 marks)

NUMBER TWO

Daegu Construction Company Ltd made a Sh.100 million bondage 5 years ago when interest rates were substantially high. The interest rates have now fallen and the firm wishes to retire this old debt and replace it with a new and cheaper one. Given here below are the details about the two bond issues:

Old Bonds: The outstanding bonds have a nominal value of Sh.1,000 and 24% coupon interest rate. They were issued 5 years ago with a 15-year maturity. They were initially sold a their nominal value of Sh.1,000 and the firm incurred Sh.390,000 in floatation costs. They are callable at Sh.1,120.

New Bonds: The new bonds would have a Sh.1,000 nominal value and a 20% coupon interest rate. They would have a 10-year maturity and could be sold at their par value. The issuance cost of the new bonds would be Sh.525,000.

Assume the firm does not expect to have any overlapping interest and is in the 35% tax bracket.

Required:

a)   Calculate the after-tax cash inflows expected from the unamortized portion of the old bond's issuance cost.
            (2 marks)

b)   Calculate the annual after-tax cash inflows from the issuance of the new bonds assuming the 10-year amortization.
                   (2 marks)

c)   Calculate the after-tax cash outflow from the call premium required to retire the old bonds.
            (2 marks)

d)   Determine the incremental initial cash outlay required to issue the new bonds.
        (10 marks)

e)   Calculate the annual cash-flow savings, if any, expected from the bond
refunding.   (8 marks)

f)   If the firm has a 14% after-tax cost of debt, would you recommend the
        proposed refunding and reissue? Explain.
                        (4 marks)

                                                        (Total: 28 marks)

NUMBER THREE

Summarised below are financial data in respect of Mata Ltd:

Profit and loss Accounts for the years ended

	1996	1994	1995
	Sh.'000'	Sh.'000'	Sh.'000'
Turnover	76,270	89,410	102,300
Taxable income	10,140	12,260	14,190
Taxation	3,549	4,291	4,966
Net profit	6,591	7,969	9,224
Dividends	2,335	2,557	2,800
	4,256	5,412	6,424
	====	====	=====

Balance Sheet as at 31 March	
Fixed Assets	54,200
Current Assets	39,500
Current Liabilities	(26,200)
	67,500
	====
Ordinary shares (Sh.5 par value)	20,000
Reserves	32,500
10% Debentures (due 2000) par	15,000
Sh.100	67,500
	====

As a result of recent capital expansion, market analysts expect pre-tax earnings to increase at the rate of 25% for the next two years before reverting to the company's existing growth rate.

The company's overall beta is 0.763 while the beta for debt is 0.20. The risk free rate is 12% and the market return is 17%. Currently, the shares of the company are selling at Sh.21.70 on the stock exchange cum 1996 dividend. The debentures are selling at Sh.89.50 ex-interest.
The corporate tax is 35%.

Required:

a) Using the dividend growth model, estimate what a fundamental analyst might consider to be the intrinsic value of Mata's shares. Comment on this value.
            (10 marks)

b) If interest rates were to go by 5% what would be the effect of this increase on the company's share price?
            (5 marks)

c) What is the difference between fundamental analysis and a chartist's analysis in the valuation of shares?
            (5 marks)
                                                    (Total: 20 marks)

NUMBER FOUR

Lekia Engineering . (LE) has the following structure, which it considers to be optimal:

Debt	25%
Preferred stock	15
Common equity	60
	100%

LE's expected net income this year is Sh.34,285.72; its established dividend payout ratio is 30 percent; its marginal tax rate is 40 percent; and investors expect earnings and dividends to grow at a constant rate of nine percent in the future. LE paid a dividend of Sh.3.60 per share last hear, and its stock currently sells at a price of Sh.60 per share.

LE can obtain new capital in the following ways:

Common: New common stock has a flotation cost of ten percent for up to Sh.12,000 of new stock and 20 percent for all common stock over Sh.12,000.

Preferred: New preferred stock with a dividend of Sh.11 can be sold to the public at a price of Sh.100 per share. However, flotation costs of Sh.5 per share will be incurred for up to Sh.7,500 of preferred stock, and flotation costs will rise to Sh.10 per share, or ten percent, on all preferred stock over Sh.7,500.

Debt: Up to Sh.5,000 of debt can be sold at an interest rate of 12 percent; debt in the range of Sh.5,001 to Sh.10,000 must carry an interest rate of 14 percent; and all debt over Sh.10,000 will have an interest rate of 16 percent.

LE has the following independent opportunities:

PROJECT	COST AT t= 0 (SH.)	ANNUAL NET CASH FLOW (SH.)	PROJECT LIFE (YEARS)	IRR (%)
A	10,000	2,191.20	7	12.0
B	10,000	3,154.42	5	17.4
C	10,000	2,170.18	8	14.2
D	20,000	3,789.48	10	13.7
E	20,000	5,427.84	6	?

(a) Find the break points in the MCC schedule
(b) Determine the cost of each capital structure component.
(c) Calculate the weighted average cost of capital in the interval between each break in the MCC schedule.
(d) Calculate the IRR for Project E.
(e) Construct a graph showing the MCC and IOS schedules.
(f) Which projects should LE accept?

NUMBER FIVE

Cynet Manufacturing Corporation (CMC) has an all-common-equity capital structure. It has 200,000 shares of Sh.2 par value common stock outstanding. When CMC's founder, who has also its research director and most successful inventor; retired unexpectedly to the South Pacific in late 2000, CMC was left suddenly and permanently with materially lower growth expectations and relatively few attractive new investment opportunities. Unfortunately, there was no way to replace the founder's contributions to the firm. Previously, CMC found it necessary to plow back

most of its earnings to finance growth, which averaged 12 percent per year. Future growth at a five percent rate is considered realistic, but that level would call for an increase in the dividend payout. Further, it now appears that new investment projects with at least the 14 percent rate of return required by CMC's stockholders ($k_s = 14\%$) would amount to only Sh.800,000 for 2001 in comparison to a projected Sh.2,000,000 of net income. If the existing 20 percent dividend payout were continued, retained earnings would be Sh.1.6 million in 2001, but as noted, investments that yield the 14 percent cost of capital would amount to only Sh.800,000.

The one encouraging thing is that the high earnings from existing assets are expected to continue, and net income of Sh.2 million is still expected for 2001. Given the dramatically changed circumstances, CMC's management is reviewing the firm's dividend policy.

(a)   Assuming that the acceptable 2001 investment projects would be financed entirely by earnings retained during the year, calculate DPS in 2001 if CMC follows the residual divided policy.

(b)   What *payout ratio* does your answer to part a imply for 2001?

(c)   If a 60 percent payout ratio is maintained for the foreseeable future, what is your estimate of the present market price of the common stock? How does this compare with the market price that should have prevailed under the assumptions existing just before the news about the founder's retirement? If the two values of P_0 are different, comment on why.

(d)   What would happen to the price of the stock if the old 20 percent payout were continued? Assume that if this payout is maintained, the average rate of return on the retained earnings will fall to 7.5 percent and the new growth rate will be

g = (1.0 – Payout ratio)(ROE)

= (1.0 – 0.2)(7.5%) = (0.8)(7.5%) = 6.0%

ANSWERS

NUMBER ONE

a)   Reasons for foreign investment by MNC.

- To seek new markets for their products
- To seek growth opportunities outside their home markets
- To take advantage of tax incentives offered in other countries
- To avoid regulatory and political bottlenecks in their home country
- To diversify their operations and reduce their overall risk
- To seek new technology in form of scientific ideas for design of their products and services
- Increase production efficiency by moving to countries with low production costs.

b)   Political (sovereign) risk is a probability that political event will impact adversely in the domestic and foreign firms. The host government may interfere with the operations of a MNC in a number of ways:

- Non-discriminatory interferences e.g no transfer price, non-convertibility of the currency of host nation etc.
- Discriminatory interference e.g special tax rates, government insisting on a joint venture with MNC etc.
- Discriminatory sanctions e.g. ending the right to remit or repatriate profits
- Wealth deprivation i.e takeover of a MNC by the government without any compensation.
- Anti-trust policies
- Fiscal & monetary policies e.g invest a portion of liquid cash in government to bills and treasury bonds etc.

c)   Steps to minimise political risk
- Investment insurance e.g from multi-national investment guarantee agency (MIGA)
- Forecast political interference in capital budgeting process
- Negotiation with the host government before investing
- Make prior arrangement on issues relating to transfer pricing, profit repatriation etc.
- Joint venture with the host government
- Sale of shares in the host country to raise capital
- Local supply of goods and control of marketing
- Pre-planned disinvestments and cease operations due to political interference

NUMBER TWO

a)   Unamortised issue costs of old bonds

$$\frac{10 \text{ yrs}}{15 \text{ yrs}} \times 390,000 \quad = 260,000$$

Tax savings = 260,000 x 0.35 = <u>Sh.91,000</u>

b)   The new bond issuance costs would be amortised over 10 years.

$$\frac{525,000}{10 \text{ yrs}} = \underline{52,500}$$

Tax savings p.a. 52,500 x 0.35 = <u>Sh.18,375</u>

c)   Call premium:

Call premium = 1120 – 1000 = 120 per Sh.1,000 bond.

Therefore: $\frac{\text{Sh.120} \times 100\text{M}}{1,000} = 12,000,000$

After tax call premiums = 12,000,000 x (1-0.35) = Sh.7,800,000

Therefore after tax cash outflow of all premium = Sh.7,800,000.

d)   Incremental initial capital

Call premium before tax	Sh.	12,000,000
Issue costs of new bond		<u>525,000</u>
		12,525,000

Less tax savings:

Call premium tax savings 12,000,000 x 0.35   (4,200,000)
Unamortised issuance costs = 260,000 x 0.35   (91,000)
Net cash outlay of refunding   8,234,000

e)   Cash savings p.a.
     New bond   Sh.'000'
     Interest charges p.a. = 20% x 100m   20,000
     Less tax savings:
     Interest charges p.a.   20,000

     Issuance cost p.a. = $\frac{525,000}{10yrs}$ = $\frac{52.5}{20,052.5}$
     Tax savings = 20,052.5 x 0.35   7,018.4
                                                    12,981.6
     Old bond
     Interest charges p.a. 24% x 100M   24,000
                   Less tax savings
                   Int. charges p.a.   24,000
     Unamortised costs p.a. = $\frac{260,000}{10yrs}$ = $\frac{26}{24,026}$
     Tax saving = 24,026 x x 0.35   (8,409.1)
                                                     15,590.9
     Net savings p.a. = 15,590.9 – 12,981.6 = 2,609.3 p.a.

f)   Discounting rate = after tax cost of new debt = 20%(1 – 0.35) = 13%
     $PVAF_{13\%},10 = 5.426$
     P.V of savings = 2,609.3 x 5.426 =   14,156.062
     Less initial capital (in (e) above)   (8,234.000)
     NPV   5,924.062
     Decision: since NPV is +ve, refund the bond.

NUMBER THREE

a)   *Compute the Ex-div MPS
     Cum-div MPS   Sh.21.70
     Less DPS – 1996 =   2,800,000

$$4{,}000{,}000 \text{ shares} \qquad \underline{\text{Sh. } 0.70}$$

Ex-div MPS   Sh.21.00

Compute the market value of debt and equity.

M.V of equity (E) = $\dfrac{\text{Sh.20 M}}{\text{Sh. 5 par value}}$ x Sh.21   =   84M

M.V of debt (D)   = $\dfrac{\text{Sh.15M}}{\text{Sh.100 par value}}$ x Sh.89.50 =   13.425

Determine the equity Beta of the firm

$$Bo = Be\,\frac{E}{E+D(1-T}+Bd\,\frac{D(1-T)}{E+D(1-T)}$$

Where Bo = Overall/asset Beta = 0.763
      Be = Equity Beta
      Bd = debt Beta = 0.20
      D(1 – T) = After tax market value of debt
              = Sh.13,425M(1-0.35) = 8.73M
      E = MV of equity = 84M
      D(1-T) + E = 84M + 8.73 = Sh.92.73M

$$0.763 = Be\,\frac{84}{92.73}+0.20\left(\frac{8.73}{92{,}73}\right)$$

0.763 = 0.906Be + 0.019

0.906Be = 0.744

Be = 0.82

Determine cost of equity, Ke, using CAPM
Ke = 12% + (17% - 12%)0.82 = 16.1% = 16%

Determine the current growth rate 1994 dividends $(1 + g)^n$ = 1996 dividends
2335$(1 + g)^2$ =   2,800

$$\sqrt{(1+g)^2} = \frac{2800}{2335} = \sqrt{1.1991}$$

1+g = 1.095

$g = 0.095 = 9.5\%$

Using the 1996 DPS, determine the P.V of all expected dividends @ 16% discounting rate.

Year	Expected DPS	$PVIF_{16\%},n$	P.V
1	$0.70(1.25)^1 = 0.88$ 0.862	0.76	
2	$0.70(1.25)^2 = 1.09$	0.743	0.81
3-∞	$\dfrac{1.09(1.095)}{0.16 - 0.095} = 18.36$	0.743	13.64

Total P.V = intrinsic value   Sh.   <u>15.21</u>
Ex-div MPS   Sh.   21.00

Therefore the share is over-valued and should be sold.

b)   If interest rate went up by 5%, the cost of equity will certainly go up by 5% to 21% i.e 16% + 5%.

Using 21% as the discounting rate, then:

Year	Expected DPS	$PVIF_{21\%}n$	P.V
1	0.88	0.826	0.73
2	1.09	0.683	0.75
3	18.36	0.683	<u>12.54</u>
New intrinsic value			<u>14.02</u>

The share price would decline from Sh.15.21 to Sh.14.02.

c)   Fundamental analysis:

- This view of valuation states that the real or intrinsic value of a security is equal to the total P.V of all expected cash flows (dividends or interest) from the security.   However, this is influenced by some fundamentals about the company such as:
- Capital structure and level of gearing
- P/E ratio
- Dividend policy and stability of DPS
- Earnings power and volatility of Eps
- Economic conditions
- Past performance of the firm
- Recent ratio analysis

- Political stability in the country

Chartist (also called technical) analysis involves the use of historical or past price pattern to predict the future price pattern. The believe is that "History shall repeat itself".

Chartists use graphs, and charts as their main tools of analysis. They have identified 3 types of price trends or patterns.

Primary trend – for price pattern observed over a long period of time e.g on yearly basis
Secondary also called seasonal trend is related to monthly price trends
Tertiary – for price pattern observed over a very short period of time e.g on weekly or daily basis.

NUMBER FOUR

(a)   A break point will occur each time a low-cost type of capital is used up. We establish the break points as follows, after first noting that LE has Sh.24,000 of retained earnings:

$$\text{Retained earnings} = (\text{Total earnings})(1.0 - \text{Payout})$$
$$= \text{Sh.34,285.72}(0.7)$$
$$= \text{Sh.24,000.}$$

$$\text{Break point} = \frac{\text{Total amount of low-cost capital of a given type}}{\text{Proportion of this type of capital in the capital structure}}$$

CAPITAL USED UP	BREAK POINT CALCULATION		**BREAK NUMBER**
Retained earnings	$BP_{RE} = \dfrac{\text{Sh.24,000}}{0.60}$	$=$ Sh.40,000	2
10% flotation common	$BP_{10\%E} = \dfrac{\text{Sh.24,000} + \text{Sh.12,000}}{0.60}$	$=$ Sh.60,000	4
5% flotation preferred	$BP_{5\%P} = \dfrac{\text{Sh.7,500}}{0.15}$	$=$ Sh.50,000	3
12% debt	$BP_{12\%D} = \dfrac{\text{Sh.5,000}}{0.25}$	$=$ Sh.20,000	1
14% debt	$BP_{14\%D} = \dfrac{\text{Sh.10,000}}{0.25}$	$=$ Sh.40,000	

Summary of break points:

There are three common equity costs and hence two changes and, therefore, two equity-induced breaks in the MCC. There are two preferred costs and hence one preferred break. There are three debt costs and hence two debt breaks.

The numbers in the third column of the table designate the sequential order of the breaks, determined after all the break points were calculated. Note that the second debt break and the break for retained earnings both occur at sh.40,000.

The first break point occurs at Sh.20,000, when the 12 percent debt is used up. The second break point, Sh.40,000, results from using up both retained earnings and the 14 percent debt. The MCC curve also rises at Sh.50,000 and Sh.60,000, as preferred stock with a 5 percent flotation cost and common stock with a 10 percent flotation cost, respectively are used up.

(b)   Component costs within indicated total capital intervals are as follows: Retained earnings (used in interval Sh.0 to Sh.40,000):

$$k_s = \frac{\hat{D}_1}{P_0} + g = \frac{D_0(1+g)}{P_0} + g$$

$$= \frac{Sh.3.60(1.09)}{Sh.60} + 0.09$$

$$= \quad 0.0654 + 0.09 \qquad\qquad =$$

15.54%

Common with F = 10% (Sh.40,001 to Sh.60,000):

$$k_e = \frac{\hat{D}_1}{P_0(1.0 - F)} + g = \frac{Sh.3.924}{Sh.60(0.9)} + 9\% \qquad = \qquad 16.27\%$$

Common with F = 20% (over Sh.60,000):

$$k_e = \frac{Sh.3.924}{Sh.60(0.8)} + 9\% \qquad\qquad = \qquad 17.18\%$$

Preferred with F = 5%(Sh.0 to Sh.50,000):

$$k_p = \frac{D_p}{P_0 - Fotation\ costs} = \frac{Sh.11}{Sh.100(0.95)} \qquad = \qquad 11.58\%$$

Preferred with F = 10% (over Sh.50,000):

$$k_p = \frac{Sh.11}{Sh.100(0.9)} \qquad\qquad = \qquad 12.22\%$$

Debt at k_d = 12% (Sh.0 to Sh.20,000)

$$K_{dT} = k_d(1 - T) = 12\%(0.6) \qquad = 7.20\%$$

Debt at k_d = 14% (Sh.20,001 to Sh.40,000):

$$K_{dT} = 14\%(0.6) \qquad = 8.40\%$$

Debt at k_d = 16% (over Sh.40,000):

$$K_{dT} = 16\%(0.6) \qquad = 9.60\%$$

(c)   WACC calculations within indicated total capital intervals:

(1)   Sh.0 to Sh.20,000 (debt = 7.2, preferred = 11.58%, and retained earnings [RE] = 15.54%):

$$WACC_1 = w_d K_{dT} + w_p k_p + w_s k_s$$
$$= 0.25(7.2\%) + 0.15(11.58\%) + 0.60(15.54\%) = 12.86\%.$$

(2)   Sh.20,001 to Sh.40,000 (debt = 8.4%, preferred = 11.58%, and RE = 15.54):

$$WACC_2 = 0.25(8.4\%) + 0.15(11.58\%) + 0.60(15.54\%) = 13.16\%$$

(3)   Sh.40,001 to Sh.50,000 (debt = 9.6%, preferred = 11.58%, and equity = 16.27):

$$WACC_3 = 0.25(9.6\%) + 0.15(11.58\%) + 0.60(16.27\%) = 13.90\%$$

(4)   Sh.50,001 to Sh.60,000 (debt = 9.6%, preferred = 12.22%, an equity = 16.27

$$WACC_4 = 0.25(9.6\%) + 0.15(12.22\%) + 0.60(16.27\% = 14.00\%$$

(5)   Over Sh.60,000 (debt = 9.6%, preferred = 12.22%, and equity = 17.18%):

$$WACC_5 = 0.25(9.6\%) + 0.15(12.22\%) + 0.60(17.18\%) = 14.54\%$$
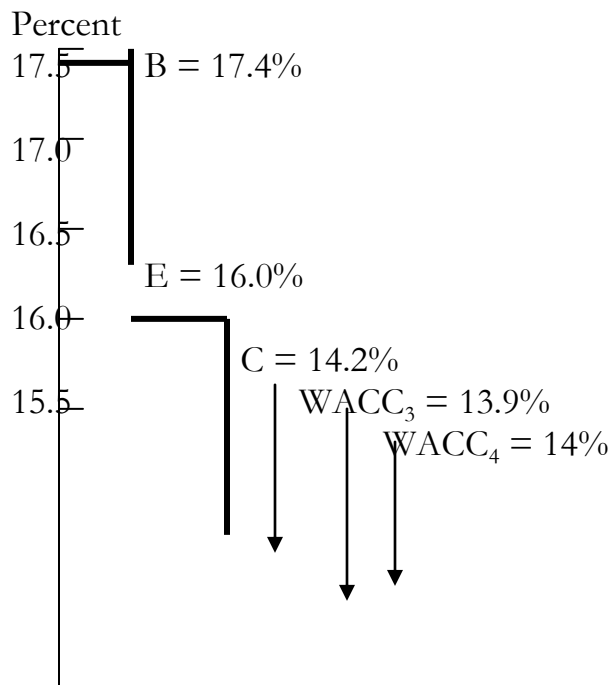
(d)   IRR calculation for Project E:

$$PVIFA_{k,6} = \frac{Sh.20,000}{Sh.5,427.84} = 3.6847$$
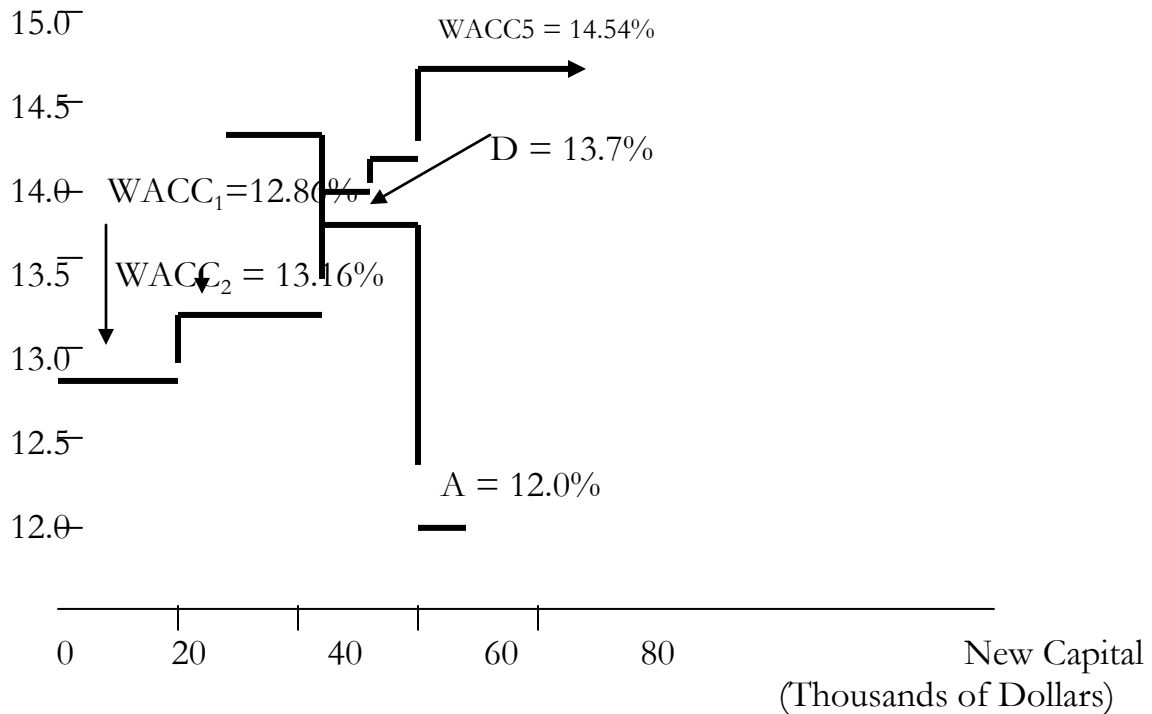
This is the factor for 16 percent, so $IRR_E = 16\%$
Alternatively, N = 6, PV = -20000, PMT = 5427.84, and I = ? I = 16.00%

(e)   See the graph of the MCC and IOS schedules for LE below.

LE: MCC AND IOS SCHEDULES

Percent

17.5 — B = 17.4%

17.0

16.5

E = 16.0%

16.0

C = 14.2%

15.5 $WACC_3 = 13.9\%$

$WACC_4 = 14\%$

The graph shows WACC values plotted against New Capital (Thousands of Dollars):
- WACC5 = 14.54%
- D = 13.7%
- WACC₁ = 12.86%
- WACC₂ = 13.16%
- A = 12.0%

(f) LE should accept Projects B, E, and C. It should reject Projects A and D because their IRRS do not exceed the marginal costs of funds needed to finance them. The firm's capital budget would total Sh.40,000.

NUMBER FIVE

(a)

Projected net income	Sh.2,000,000
Less projected capital investments	(800,000)
Available residual	Sh.1,200,000
Shares outstanding	200,000

(b) DPS = Sh.1,200,000/200,000 shares = Sh.6 = $\hat{D}_1$
EPS = Sh.2,000,000/200,000 shares = Sh.10
Payout ratio = DPS/EPS = Sh.6/Sh.10 = 60%; or
Total dividends/NI = Sh.1,200,000/Sh.2,000,000 = 60%

(c) Currently, $P_0 = \dfrac{\hat{D}_1}{k_s - g} = \dfrac{Sh.6}{0.14 - 0.05} = \dfrac{Sh.6}{0.09} = Sh.66.67$

Under the former circumstances, $\hat{D}_1$ would be based on a 20 percent payout on Sh.10 EPS, or Sh.2. with $k_s = 14\%$ and $g = 12\%$, we solve for P_0:

$$P_0 = \frac{\hat{D}1}{k_s - g} = \frac{Sh.2}{0.14 - 0.12} = \frac{Sh.2}{0.02} = Sh.100$$

Although CMC has suffered a severe setback, its existing assets will continue to provide a good income stream. More of these earnings should now be passed on to the shareholders, as the slowed internal growth has reduce the need for funds. However, the net result is a 33 percent decrease in the value of the shares.

(d)   If the payout ratio were continued at 20 percent, even after internal investment opportunities had declined, the price of the stock would drop to Sh.2/(0.14 − 0.06) = Sh.25 rather than to sh.66.67. Thus, an increase in the dividend payout is consistent with maximizing shareholder wealth.

Because of the downward-sloping IOS curve, the greater the firm's level of investment, the lower the average ROE. Thus, the more money CMC retains and invests, the lower its average ROE will be. We can determine the average ROE under different conditions as follows:

Old situation (with founder active and 20 percent payout):

g = (1.0 − Payout ratio)(Average ROE)
12% = (1.0 − 0.2)(Average ROE)
Average ROE = 12%/0.8 = 15% > k_s = 14%

Note that the *average* ROE is 15 percent, whereas the *marginal* ROE is presumably equal to 14 percent.

New situation (with founder retired and a 60 percent payout)

g = 6% = (1.0 − 0.6)(ROE)
ROE = 6%/0.4 = 15% > k_s = 14%.

This suggests that the new payout is appropriate and that the firm is taking on investments down to the point at which marginal returns are equal to the cost of capital.