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SUGGESTED ANSWERS TO QUESTIONS

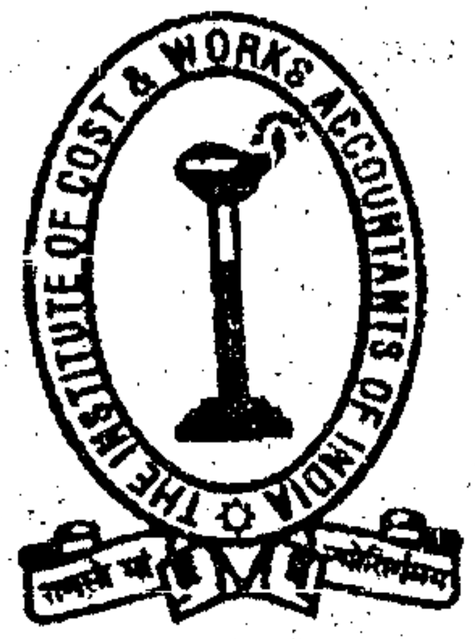
(REVISED SYLLABUS)

SET AT THE

FINAL EXAMINATION

DECEMBER 2005

STAGE IV



THE INSTITUTE OF
COST AND WORKS ACCOUNTANTS OF INDIA

12, SUDDER STREET, KOLKATA - 700 016

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GUIDELINES TO STUDENTS

1. Students are advised to consult Study Notes and Text Books supplemented by the Suggested Answers.
2. Working Notes should be part of Answers, particularly in Cost and Management Accounting and Taxation.
3. Assumptions should be logically and clearly stated in the Answers.

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FINAL EXAMINATION – STAGE IV
(REVISED SYLLABUS)
SUGGESTED ANSWERS TO QUESTIONS
DECEMBER - 2005

Paper 17 : Management Accounting – Decision Making

Attempt Question No. 1 (carrying 20 marks) and any five (each carrying 16 marks) from the rest.

Question No.1. In each of the cases given below one out of four answers is correct. Indicate the correct answer and give your working/reasons in support of your answer.

(a) The total cost of manufacturing a component is as under at a capacity of 50,000 units of production per quarter:

	Rs
Prime cost	10.00
Variable overheads	2.40
Fixed overheads	4.00
	16.40

The selling price is Rs 21 per unit. The variable selling and administrative expenses is 60 paise per component extra. During the next quarter only 10,000 units can be produced and sold. Management plans to shut down the plant estimating that the fixed manufacturing cost can be reduced to Rs 74,000 per quarter. When the plant is operating, the fixed overheads are incurred at a uniform rate throughout the year. Additional costs of plant shut down for the quarter are estimated at Rs 14,000.

The shut down point for the quarter in units of product will be

(A) 25,000 (C) 11,000
(B) 14,000 (D) 20,000 4

(b) Division J of NZ Ltd produced the following results in the last financial year:

	Rs (000)
Net profit	720
Capital employed in fixed assets	3000
Capital employed: net current assets	200

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For performance appraisal purposes, all divisional assets are valued at original cost. The division is considering a project which will increase annual net profit by Rs 50,000 but will require average stock levels to increase by Rs 60,000 and fixed assets to increase by Rs 2,00,000.
NZ Ltd imposes a 16% capital charge on its divisions. Given these circumstances, will the appraisal criteria Return on Investment (ROI) and Residual Income (RI) motivate division J management to accept the project?

	ROI	RI
(A)	Yes	Yes
(B)	Yes	No
(C)	No	No
(D)	No	Yes

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(C) A company manufactures two products using common material handling facility. The total budgeted material handling cost is Rs 60,000. The other details are:

	Product X	Product Y
Number of units produced	30	30
Material moves per product line	5	15
Direct labour hour per unit	200	200

Under activity based costing system the material handling costs to be allocated to product X (per unit) would be:
(A) Rs 1,000 (C) Rs 1,500
(B) Rs 500. (D) Rs 2,500

4

(d) When a manager is concerned with monitoring total cost, total revenue, and net profit conditioned upon the level of productivity, an accountant should normally recommend.

	Flexible Budgeting	Standard costing
(A)	Yes	Yes
(B)	Yes	No
(C)	No	Yes
(D)	No	No

4

(e) A company's approach to a make-or-buy-decision

(A) Depends on whether the company is operating at or below normal volume.
(B) Involves an analysis of avoidable costs.
(C) Should use absorption (full) costing.
(D) Should use activity-based-costing.

4

Answer to Qn.. No.1 (a) Answer B is correct.

Contribution per unit of component		Rs	Rs
Variable cost:	Prime cost	10.00	
	Variable overhead	2.40	
	Selling/Administrative expenses	0.60	13.00
Contribution			Rs 8.00

Avoidable fixed cost per quarter
= total fixed cost – (unavoidable fixed cost + additional shut down cost)
= (50,000 x Rs 4) – (Rs 74,000 + Rs 14,000) = Rs 1,12,000.

The required shut down point for the quarter = Rs 1,12,000 / Rs 8 = 14,000 units.

(b) Answer D is correct.
Current ROI = (720/3200) x 100 % = 22.5%
New ROI = {(720 + 50)/(3200 + 260} x 100% = 22.25%
The new ROI is lower and is not acceptable to the divisional management.

Current RI in Rs(000) = 720 – (16% x 3200) = 208
New RI in Rs(000) = (720 +50) –{16% x (3200 + 260)} = 216 216.40
The new RI is higher and will motivate the divisional management.

(c) Answer B is correct.

Total moves in material handling = 5 + 15 = 20.
Percentage move for Product A = 5/20 = 25%.

Material handling cost to be allocated to Product A = Rs 60,000 / 25% = Rs 15,000
ie, Rs 15,000 / 30 = Rs 500 per unit.

(d) Answer A is correct.

A flexible budget is a set of static budgets prepared in anticipation of varying levels of activity. It permits evaluation of actual results when actual production and expected production differ. Setting cost standards facilitates preparation of a variable budget. For example, a standard unit variable cost is useful in determining the total variable cost for a given output.

(e) Answer B is correct.

Available resources should be used as efficiently as possible before outsourcing. If the total 'relevant' costs of production are less than the cost to buy the item, it should be produced in-house. The relevant costs are those that can be avoided.

Question No. 2. X Ltd. has been offered a contract to manufacture six special machines for the Government. Manufacture would take a total of three years at the rate of two machines per year. Payment would be in two installments, Rs 3,50,000 at the start of manufacture and another Rs 3,50,000 upon completion.

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The company is now evaluating the contract to see if it is worthwhile undertaking and its management accounting department has produced the following estimates about the resources required to produce the special machines:

(a) Materials:

Type of material	Quantity per M/c	Amount in stock now (tons)	Original cost of stock per ton Rs	Current purchase price per ton Rs	Current realizable value per ton Rs
Copper	20	60	700	1000	800
Radium	10	20	500	750	See below

Copper is used regularly by the company on many contracts. Radium is used rarely and if the existing stock is not applied to this contract it will have to be disposed immediately at a net cost of Rs 100 per ton. Materials required for the contract must be purchased and paid for annually in advance. Replacement cost of copper and radium and the realizable value of copper are expected to increase at an annual compound rate of 20%.

(b) Labour:

Each of the six machines will require 3,000 hours of skilled electronic engineering and 5,000 hours of unskilled labour. Current wage rate are Rs 4 per hour for skilled electronic staff and Rs 3 per hour for unskilled labour.

X Ltd expects to suffer a shortage of skilled staff during the first year so that acceptance of the contract would make it necessary for the firm to give up 'other work' on which a contribution of Rs 7 per hour would be earned (the other work would require no unskilled labour).

In the contract's first year only, the company expects to have 20,000 surplus unskilled labour hours. The company has an agreement with the in-house trade union whereby it lays off employees for whom there is no work and pays them two-thirds of their normal wages during the lay-off period. All wage rates are expected to increase at an annual compound rate of 15%.

(c) Overheads:

Overhead costs are currently allocated to contracts at a rate of Rs 14 per skilled labour hour calculated as follows:

Fixed overhead (including equipment depreciation of Rs 5)	11
Variable overhead	3

Special equipment will be required to undertake this contract and will be purchased at Rs 2,00,000 payable immediately. It will be sold once the contract is completed for Rs 50,000. Both fixed and variable overheads are expected to increase in line with the Retail Price Index.

The special equipment will be financed with the first contract installment paid by Government.

The company believes that a return of 20% would be acceptable for the project. The Retail Price Index is expected to increase by 15% per year over the life of the contract.

All current prices will hold for the next 12 months, before increasing in line with inflation.

Therefore material cost for the second year's production will be 20% higher than the current market prices.

Analyse and comment whether the project can be acceptable. Ignore Tax. 16

Answer to Qn.. No. 2

Workings:

(i) Material:

Copper: Year 1 Use 40 tons ex-stock. Its replacement cost is Rs 1,000 p.t.
Year 2 Purchase 40 t @ Rs 1,000 (1.2) p.t. = Rs 1,200 p.t.
Year 3 Purchase 40 t @ Rs 1,000 $(1.2)^2$ p.t = Rs 1,440 p.t.

Radium Year 1 Use 20 tons ex-stock. It will save a disposal cost of Rs 100 p.t. (opportunity benefit)
Year 2 Buy 20 t @ Rs 750 (1.2) p.t. = Rs 900 p.t.
Year 3 Buy 20 t @ Rs 750 $(1.2)^2$ P.t. = Rs 1,080 p.t.

(ii) Labour:

Skilled: Year 1 6,000 hrs taken from other current work. Relevant cost would be current wage rate *plus* lost contribution = Rs 4 + Rs 7 = Rs 11 p.h.
Year 2 Hire 6,000 hrs @ Rs 4 (1.15) = Rs 4.60 p.h.
Year 3 Hire 6,000 hrs @ Rs 4 $(1.15)^2$ = Rs 5.29 p.h.
Unskilled Year 1 Utilize 10,000 hrs of surplus labour. Cost is incremental wage payable i.e. Re 1 p.h.
Year 2 Hire 10,000 hrs @ Rs 3 (1.15) = Rs 3. 45 p.h.
Year 3 Hire 10,000 hrs @ Rs 3 $(1.15)^2$ = Rs 3.97 p.h.

(iii) Overhead:

Fixed: Excluded as non-incremental.
Depreciation : Excluded as non-cashflow.
Variable : Year 1 Rs 3 per skilled labour hour.
Year 2 Rs 3 x 1.15 = Rs 3.45 per skilled labour hour.
Year 3 Rs 3 x $(1.15)^2$ = Rs 3.97 per skilled labour hour.

X Ltd.

Analysis of the Project and Decision thereon:

Project Cash Flows (in Rs 000)

Year	0	1	2	3
Revenue	+ 350			+ 350
Equipment cost	- 200			
Scrap sale				+ 50

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Material cost - Copper	- 40	- 48	- 57.6		
- Radium	+ 2	- 18	- 21.6		
Labour cost - Skilled		- 66	- 27.6	- 31.7	
- Unskilled		- 10	- 34.5	- 39.7	
Variable overhead	____	- 18	- 20.7	- 23 .0	
Net cash flow	+ 112	-160	-162	+305.6	(a)
[20% discount factor	1.0000	0.8333	0.6944	0.5787	(b)
Present value of cashflow	+112.0	- 133.3	- 112.5	+ 176.8 (a x b)	

The project's Net Cash Flow = + Rs 43,000.
The Project is acceptable from this financial point of view.

Question NO. 3 X Ltd, a manufacturer of building products, supplies the wholesale trade. It has recently suffered falling demand due to recession and thus has spare capacity. It now decides to produce ceramic tiles for the home improvement market. It has already paid Rs 5,00,000 for development expenditure, market research and a feasibility study.

The initial analysis reveals scope for selling 1,50,000 boxes per annum over a five year period at a price of Rs 20 per box. Estimated operating costs, based on experience are as follows:

Cost per box of tiles (Rs) (at today's price)

Material cost	8.00
Direct Labour	2.00
Variable overhead	1.50
Fixed overhead (allocated)	1.50
Distribution (etc)	2.00

Production can take place in existing facilities although initial redesign and set-up costs would be Rs 20,00,000 after allowing for all relevant tax reliefs. Return from project would be taxed at 33%. X Ltd's shareholders require a nominal return of 14% per annum after tax, which includes allowance of 5.5% per annum for inflation.

Required :

(a) Assess the financial desirability of the venture in real terms, finding both the net present value and the internal rate of return (to the nearest 1%) offered by the project. 4 + 4

(b) Determine the values of
(i) Price (ii) Volume at which the project's NPV becomes zero. 4 + 4

Discuss your results, suggesting appropriate management action.

Answer to Qn. No. 3

(a) Real discount rate (1.14/1.055) – 1 = .08 ie, 8%.

Contribution per box sold = Rs 20.00 – Rs 13.50 = Rs 6.50
[Allocated fixed overhead is not relevant].

Annual cash flow is 1,50,000 boxes x Rs 6.50 x (1- 0.33) = Rs 6,53,250
So, NPV = (Rs 6,53,250 x 3.993) – Rs 20 lakh = Rs 6,08,428.

IRR is where the cumulative discount factor at X% for 5 years
= Investment Rs 20 lakh / Rs 6,53,250 = 3.062. This is 19% approximately.

The project is acceptable, as the NPV is positive and the IRR exceeds the real cost of capital of 8%.

(b) Sensitivity test for price. Let p be that price which will result in 0 NPV (other factors remaining unaltered).

NPV will be 0, when 0.15m (p – Rs 13.50) (1 – 0.33) PVIFA $_{8\%,5}$ – Rs 2m = 0
Or, (.15mp –2.025m) 2.675 – Rs 2m = 0
Or, p = Rs 18.50

So, price can drop by Rs 1.50 (7.5%) before NPV becomes negative.

Sensitivity test for volume. Let v be that volume which will result in 0 NPV (other factors remaining unaltered).

In this case NPV will be 0, when v (Rs 20 – Rs 13.50) (1-.33) PVIFA$_{8\%,5}$ – Rs 2m = 0
Or, Rs 6.50 v (2.675) – Rs 2m
Or, v = Rs 2m / 17.3875 = 1,15,025

So, volume can drop by 34,975 boxes [1,50.000 – 1,15,025] ie, by 23% before NPV becomes negative.

In view of the above, NPV is more sensitive to price variations than to changes in volume.

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Question No.4 The following data have been collected relating to W division of the MACRO group.

Data for W Division

		Rs
Sales Revenue	External customers	6,00,000
	Internal transfers	3,50,000
Variable operating costs	Labour	95,000
	Materials	1,60,000
	Overheads	42,500
Fixed operating costs	Controllable by division	78,000
	Controllable centrally	41,000
Divisional management cost	Controllable centrally	26,500
Fixed Assets (at cost)	Divisional purchases	4,50,000
	Central purchases	2,50,000

Total central administration and management cost
(These are apportioned on the basis of sales revenue which was Rs 52 lakhs for the group as a whole) 6,84,210

The group's weighted average cost of capital is estimated at 15% and it is the group policy to calculate depreciation on a straight line basis at 25% and to impute interest on a gross investment basis

Prepare from the above data, a divisional performance statement on
(i) Profit centre approach 8

(ii) Investment centre approach. 8

Answer to Qn. No 4 :

Divisional Performance Statement

Divisional Revenue		9,50,000
(Less) Variable Cost:		
Labour	95,000	
Materials	1,60,000	
Overheads	42,500	(2,97,500)
Divisional contribution		6,52,500
(Less) Controllable fixed overhead		(78,000)
(Less) Controllable depreciation [4,50,000 x 25%]		(1,12,500)
Controllable profit		Rs 4,62,000

(a) Profit Centre Approach

Controllable Profit ,as worked above		4,62,000
(Less) Non-controllable fixed operating costs		
41,000 + 26,500 = 67,500		
Non-controllable depreciation = 62,500		(1,30,000)
(Less) Apportioned Central charges (6,84,210/52,00,000) x 9,50,000 =		(1,25,000)
Net Profit before tax		Rs2,07,000

(b) Investment Centre Approach

Net profit before tax (same as in Profit Centre Approach)		Rs 2,07,000
(Less) 15% Cost of Capital (being imputed interest on gross investment in fixed assets: - Controllable 67,500 - Non-controllable 37,500)	=	(1,05,000)
Net Residual Income before tax		Rs1,02,000

Question No. 5 (a) Z Ltd produces a single product X, which passes through three different processes, A,B and C. The throughput per hour of the three processes is 12,10 and 15 units of X respectively. The company works an 8-hour day, 6 days a week, 48 weeks a year. The selling price of X is Rs 150 per unit and its material cost is Rs 30 per unit. Conversion costs are planned to be Rs 24,000 per week.

Required:

(i) Determine the throughput accounting (TA) ratio per day. 4

(ii) Calculate how much the company could spend on equipment to improve the throughput of process B if it wished to recover its costs in the following time periods:
(a) 2 years, (b) 12 weeks 4

(iii) Calculate the revised TA ratio if this money is spent. 4

(b) X Ltd manufactures a single product. Standard costs for materials and conversion costs are Rs 40 and Rs 30 per unit respectively. The company uses a backflush accounting system with two trigger points: raw materials purchased and goods transferred to finished goods store. At the beginning of March there was no opening stock of raw materials or WIP and at the end of the month there was no WIP.

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Other data for the month

Number of completed production units	15000
Number of products sold	14,000
Raw materials purchased	Rs 6,30,000
Conversion costs incurred	Rs 4,70,000

Prepare summary journal entries for March assuming that there were no material cost variances and without writing off under- or over–absorbed conversion costs. 4

Answer to Qn. No. 5.

Z Ltd

(a) (i)

	Process A	Process B	Process C
Throughput per hour (units)	12	10	15
Throughput per day (units)	96	80	120

Throughput contribution per unit SP – Material cost = Rs (150 – 30) = Rs 120

Throughput accounting ratio = (Contribution/day) ÷ (Conversion cost/day)

(Rs 120 x 80 units of B) ÷ (Rs 24,000 ÷ 6) = 2.4

(a)(ii-a)

Gain if bottleneck at Process B is eliminated = 96 – 80 or 16 units per day.

Gain over two years = 16 units x 6 days x 48 weeks x 2 x Rs 120 = Rs 11,05, 920.

Therefore, Rs 11 lakh could be spent if thecost were to be recovered in 2 years.

(a) (ii-b) In this alternative case of 12 week

Gain will be 16 x 6 x 12 x Rs 120 = Rs 1,38,240

Therefore, Rs 1.38 lakh could be spent if the costs were to be recovered over 12 weeks.

(a) (iii) TA ratio = (96 units x Rs 120) ÷ 4,000 = 2.88.

(b) X Ltd

Summary Journal Entries for March	Debit Rs	Credit Rs
1 Raw materials	6,30,000	
To Creditors Control		6,30,000
(for purchase of direct materials)		
2. Conversion Cost Control	4,70,000	
To Creditors		4,70,000
(for Conversion Cost Incurred)		
3 Finished Goods	10,50,000	
To Raw Materials		6,00,000
To Conversion Cost Absorbed		4,50,000
(For the Standard Cost of Completed Goods)		
4. Cost of Goods Sold	9,80,000	
To Finished Goods		9,80,000
(For the Standard Cost of Goods Sold)		

Question No. 6 (a) Division J and A are in M Group. Division J manufactures part N. Three units of part N are used in product Z manufactured by Division A. Division J has no external customers for part N. Division J transfers part N to Division A at variable costs (Rs 35 per part) plus 50%. The variable cost to division A of manufacturing product Z is Rs 50 per unit. This Rs 50 does not include the cost of part N transferred from Division J.

Division A can sell the following number of units of product Z, earning the associated levels of marginal revenue:

Units sold	1	2	3	4	5
Marginal revenue (Rs)	300	270	240	210	180

How many units of product Z should management of Division A sell if they wish to maximize divisional profit? 8

(b) Fill in the blank spaces (1 to 4) in the table below to show how standard costing and target costing differ.

Stage in product life cycle	Standard costing approach	Target costing approach
Product concept stage	No action	(1)
Design stage	(2)	keep costs to a minimum
Production stage	Costs are controlled	(3)
	Using variance analysis	
Reminder of life	(4)	Target cost reduced, perhaps monthly

Your answer should be supported by reasons. 8

Answer to Qn. No. 6

(a) The variable cost of parts for Division A's product Z = Rs 35 x 3 = Rs 105

Transfer Price = Rs 105 x 150% = Rs 157.50

Division A's variable cost per unit of Z = Rs 50

Total variable/marginal cost to Division A = Rs 207.50

Division A will sell until marginal cost = marginal revenue.

It will therefore sell 4 units.

(a) Blanks filled up:

(1) Set the selling price and required profit and determine the resulting target cost.

(2) Set standard cost and a resulting standard price.

(3) Constant cost reduction through target costing.

(4) Standards usually revised annually.

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Question No. 7 (a) What is simulation? What are the steps in simulation process? 8

(b) A project consists of following activities and the relevant information are provided as under:

Activity	Estimated duration (days) Optimistic	Most likely	Pessimistic
(1-2)	1	2	3
(1-3)	1	4	7
(1-4)	2	2	8
(2 -5)	1	1	1
(3 -5)	3	6	9
(4-6)	2	5	8
(5-6)	3	7	11
(6 -7)	1	2	3

You are required to draw the PERT network and find out the expected project completion time of the project. 4 + 4

Answer to Qn. No. 7.

(a) Simulation is quantitative procedure which describes a process by developing a model of that process and then conducting a series of organized trial and error experiments to predict the behavior of the process over a time. Observing the experiments is much like observing the process in operation. To find how the real process would react to certain changes, such changes can be incorporated in the model and simulate the reaction of the real process to these.

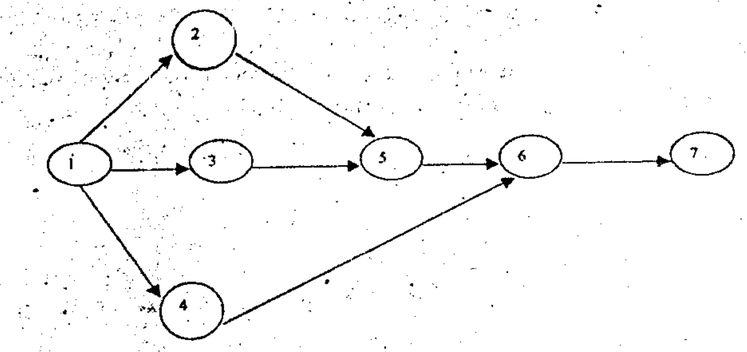
All simulations vary in complexity from situation to situation . In general, the following are the steps to be gone through:

i. Define the problem/system to be simulated
ii. Formulate the model
iii. Test the model, comparing its behavior with that of the actual problem
iv. Identify and collect the data
v. Run the simulation and analyze the results
vi. Change the solution, if desired, and re-run the simulation to test the new solution
vii Validate the simulation.

(b) Expected duration of each activity :

Activity	Duration Optimum a	Most likely m	Pessimistic b	Expected duration (a + 4m +b) / 6
1-2	1	2	3	2
1-3	1	4	7	4
1-4	2	2	8	3
2-5	1	1	1	1

3-5	3	6	9	6
4-6	2	5	8	5
5 6	3	7	11	7
6-7	1	2	3	2



a. The duration of the path 1-2-5-6-7 = 12 days.
B .The duration of the path 1-3-5-6-7 = 19 days
c. The duration of the path 1-4-6-7 = 9 days.

Hence the critical path is b. The expected project completion time = 4+6+7+2 = 19 days

Question No.8 A corporate body uses ROCE (return on capital employed) as the performance measure for each of its divisions. The ROCE is calculated by dividing the trading profit for a year by the book value of net assets at the year end. In the net asset computation, cash is excluded, as the divisions use a common bank account controlled by the corporate head quarter.

For the year ended 31-12-2005 division D was given a target ROCE of 18%, with executives being offered salary bonuses if the target is met. On 20th November, 2005 D's divisional manager receives a forecast that profit for 2005 will be Rs 17,50,000 and the net assets employed at the end of the year will be Rs 1,00,00,000. This means that the performance will fall short of the target ROCE by 0.5 per cent. The divisional manager gets worried and at once circulates a memorandum to his executives inviting proposals to deal with the situation.

The divisional manager has now before him four proposals made by his four executives:

Proposal 1, made by the accountant, suggests that payment of Rs 6,00,000 trade debt owed to a supplier (due on 22December, 2005) be deferred until 1 January, 2006; this will result in a Rs 17,000 default penalty becoming immediately due.

Proposal 2, made by the internal auditor, that a local depot be closed allowing immediate sale for Rs 12,50,000 of premises that carries a book value of Rs 11,25,000; this would result in Rs 3,74,000 immediate closure cost and future reduction in profits of Rs 1,90,000 per year over the next twelve years.

Proposal 3, from the production manager, that Rs 12,00,000 be invested in new equipment that will result in cost savings of Rs 2,51,000 per year over the next twelve years.

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Proposal 4, from the sales manager, that Rs 20,000 additional production expenses be incurred to advance completion of an order to 29 December 2005 from its previous scheduled date of 3 January, 2006. This would allow customer to be invoiced in December thereby boosting 2005 profits by Rs 90,000 (before allowing for additional expenses), but not accelerating payment by the customer which will be made on 1 February, 2006 in any event.

Required:

Consider the merits of each of the above proposals from the point of view of division D's immediate problem and the long-term position of the corporate body. **4 x 4**

[An extract from the table of cumulative present value of Re1, using the formula:
$1-1(1+r)^{-n} / r$, is given for quick reference:

Year end	Interest rates (r)			
(n)	17%	18%	19%	20%
12	4.988	4.793	4.611	4.439]

Answer to Qn. No 8

[The question requires us to consider each of the four proposals for its

i) impact on 2005 ROCE
and
ii) long-term significance on the corporate body,

and then judge its appropriateness/acceptability.]

Proposal 1. Workings and comments:

Capital employed is reduced to Rs 94,00,000.
Trading profit is reduced to Rs 17,33,000.

The accountant's proposal would have the effect of reducing capital employed and profit – with the net effect of increasing ROCE to 18.4%.This is a superficial arrangement. It is tantamount to borrowing money for ten days at an interest rate of over 103% per year. It may solve Division's immediate problem but cannot be a meritorious move from the standpoints of both the Division and the Corporate.

Proposal 2. Workings and comments:

Capital employed is reduced to Rs 88,75,000.
No change to trading profit.

The internal auditor's proposal, if carried out, would raise ROCE to 19.7%. However, it will close a project with a 19% IRR*, which will be a blunder and cannot be acceptable to the Corporate.

* [IRR = (Rs 12,50,000 – Rs 3,74,000) / Rs 1,90,000 = 4.611 over 12 years.
=> 19%. (from the PVIFA $_{k,n}$ Table)]

Proposal 3. Workings and comments:

IRR = Rs 12,00,000 ÷ Rs 2,51,000
= 4.781 over 12 years
⇨ 18%

The production manager's proposal would not meet the given target ROCE of 18% in 2005, though by itself it amounts to a project with a prospective IRR of 18%. The NPV at 18% cost of capital in 12 years is (Rs 2,51,000 x 4.793 - Rs 12,00,000) = Rs 3,099. *Ceteris paribus* , the Corporate management may approve of it.

Proposal 4 . Workings and comments:

No significant change to capital employed
[1,00,00,000 + (90,000 – 20,000) = Rs 1,00,70,000]
Trading profit would increase to Rs 18,20,000
[17,50,000 + (90,000 – 20,000) = Rs 18,00,000.

The sales manager's proposal, if carried out, would increase the ROCE to 18.1%. However, the proposal hints at creative accounting, which offers no benefit to the customer and runs counter to the fair view position of the Corporate body which should abide by the Accounting Standards.

Conclusion:

The immediate way to raise the 2005 ROCE to 18% or above will be to act upon Proposal 1, 2 , or 4, but each Proposal has its demerits and may not be welcome. For the long-term position, Proposal 3 may be considered, provided the Management's requirement of 18% ROCE does not change over the next 12 years.

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FINAL EXAMINATION – STAGE IV
(REVISED SYLLABUS)

SUGGESTED ANSWERS TO QUESTIONS
DECEMBER - 2005

Paper – 18 : Management Accounting – Financial Strategy and Reporting

The figures in the margin on the right side indicate full marks.
Answer Question No.1 which is compulsory and any five from the rest.

Please answer all bits of a question at one place.

Question No.1.(a) In the cases below, one of the answer is correct. Choose the correct answer and give your workings / reasons briefly :

(i) CIPLA Ltd. announced a rights issue of four shares of Rs.100 each at a premium of 160% for every five shares held by the existing shareholders. The market value of the shares at the time of rights issue is Rs.395. The value of right is :

A. Rs.90.00
B. Rs.80.00
C. Rs.60.00
D. Rs.55.00

(ii) PR Company's equity share is expected to provide a dividend of Rs.3.00 and fetch a price of Rs.40.00 a year hence. What price would it sell for now if investors' required rate of return is 15 percent ?

A. Rs.35.50
B. Rs.37.39
C. Rs.38.27
D. Rs.40.00

(iii) The equity shares of MNC Ltd. are selling at Rs.240 each. At the end of the holding period the share is expected to be worth any one of the following values :

Price	Profitability
Rs.220	0.3
Rs.250	0.4
Rs.280	0.3

A European call option with an exercise price of Rs.240 will (ignoring time value of money) be worth :

A. Rs.16
B. Rs 15
C. Rs. 14
D. Rs. 18

(iv) On April 1, 3 months interest rate in the US $ and Germany DM are 6.5 percent and 5.6 percent per annum, respectively. The US $/DM spot rate is 0.6560. What would be the forward rate for DM for delivery on 30th June ?

A. US $ 0.6592/DM
B. US $ 0.6528/DM
C. US $ 0.6430/DM
D. US $ 0.6525/DM

(v) An asset has a book value ofRs.5,00,000. The current replacement cost of an equivalent asset is Rs.6,00,000. The net realizable value of the asset is Rs.4,80,000. The present value of the future cash flows estimated to be generated by the asset is Rs.5,90,000. The deprival value of the asset is :

A. Rs.5,00,000
B. Rs.6,00,000
C. Rs.5,90,000
D. Rs.4,80,000

2 x 5

Answer to Qn. No.1 : (a)

(i) C : Rs.60 Value of Right = $\frac{r}{N+r}(M-S)$

Where, r = No. of rights issued = 4
N = No. of Equity Shares = 5
M = Market price = Rs.395
S = Issue price of rights = Rs.100 x 160% = Rs.260

value of a right = $\frac{4 \times (395 - 260)}{(5 + 4)}$ = Rs.60

(ii) B : Rs.37.39 The current price will be :

$$Po = \frac{3.00}{(1.15)} + \frac{40}{(1.15)}$$

= Rs.2.61 + Rs.34.78 = Rs. 37.39

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(iii) A : Rs.16.00 $Vo = 0.3 \times 0 + 0.4 (Rs.250 - Rs.240) + 0.3 (Rs.280 - Rs.240)$
$= Rs.16.00$

(iv) A : US $ 0.6592/DM

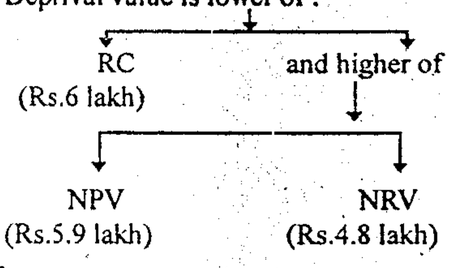
Using the interest rate relationship

$$S_1 = 0.6560 \quad \frac{1+0.065 \times 3/12}{1+0.045 \times 3/12}$$

$$= \frac{0.6560 \times 1.01625}{1.01125} = US\ \$\ 0.6592/DM$$

(v) C : Rs.5,90,000

Deprival value is lower of :



Here DV = NPV = Rs.5,90,000

Question No.1 (b) From the following, choose the most appropriate answer (only indicate A, B,C,D, as you think correct)

(i) A derivative financial instrument

A. is settled at a future date
B. is renewed at each balance sheet date
C. Invariably forms part of a hedging relationship
D. All of the above.

(ii) Firm specific risk is also called

A. Market risk
B. Non systematic risk
C. Macro risk
D. All of the above

(iii) The price of a company's share has risen from Rs.10 to Rs.400. Small investors are complaining that this is affecting their ability to buy shares in the company. Which one of the following might overcome the problem ?

A. A Share buy-back
B. A share split
C. Issuing stock option
D. A Share consolidation

(iv) Four companies, have the following P/E rations :

E 17, F 24, G 12, H 8, which of the statement about the companies is incorrect ?

A. F's share price must be twice that of G
B. E's share price is 17 times its earnings
C. H has the lowest share price relative to its earnings growth
D. F has the greatest expectations of future earnings growth

(v) According to AS-26, an active market is a market where

A. the items traded within the market are homogeneous
B. Prices are not available to the public
C. Willing buyers and sellings are not found any time
D. All of the above

(vi) A portfolio is not efficient if there is another portfolio within

A. a higher expected return and lower standard deviation
B. a lower expected return and same standard deviation
C. the same expected return and higher standard deviation
D. None of the above.

(vii) Write an option does not imply

A. Selling an option
B. Taking a short position
C. Taking a long position
D. Accepting an uncertain obligation

(viii) A strategy of anti-takeover under which the acquirer puts pressure on the management of the target company by threatening to make an open offer is known as :

A. Street sweep
B. White knight
C. Bear hug
D. Brand power

(ix) Buying and selling call or put option with the same strike price but different expiration dates is called :

A. Long hedge
B. Short hedge
C. Horizontal option spread
D. None of the above

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(x) A company has an equity rate of return of 12 per cent and a debt rate of return of 6 per cent. Its gearing ratio is 40 per cent. The tax rate is 30 per cent. Interest payments on debt are chargeable for tax. The weighted average cost of capital of the company is :

A. 8.88 per cent
B. 9.88 per cent
C. 10.88 per cent
D. 9.60 per cent

1 x 10

Answer to Qn. No.1 : (b)

i)	A	vi)	A
ii)	B	vii)	C
iii)	B	viii)	C
iv)	A	ix)	C
v)	A	x)	A

Question No. 2. (a) Ray gold Ltd. (RL) has a paid-up ordinary share capital of Rs.200 lakhs represented by 4 lakhs shares of Rs 50 each. Earnings after tax in the most recent year (2004-2005) were Rs.80,00,000 of which Rs.26,50,000 was distributed as dividend. The current price/earning ratio of these shares as reported in the financial press is 8.

The company (RL) is planning a major investment that will cost Rs.240 lakhs and is expected to produce additional after-tax earnings over the foreseeable future at a rate of 15 percent on the amount invested. The necessary finance is to be raised by a rights issue to the existing shareholders at a price 25 per cent below the current market price of the company's shares.

You are required to calculate :

(i) the current market price of the shares already in issue ;
(ii) the price at which the rights issue will be made;
(iii) the number of new shares that will be issued;
(iv) the value of the rights;
(v) the price at which the shares of the company should theoretically be quoted on completion of the rights issue (i.e. the ex-rights price), ignoring incidental and transaction costs. Assuming that – the rate of return on existing funds is 12.5% and the market accepts the company's forecast of incremental earnings.

2 + 1 + 1 + 2 + 2

Answer to Qn. No. 2 : (a)

RAYGOLD LTD.

(i) Current market price of shares already in issue :

Earnings per share (EPS) = $\frac{\text{Rs.8,00,00,000}}{\text{4,00,000}}$ = 20

P/E = $\frac{\text{Market price per share}}{\text{Earning per share}}$ = 8

Market price per share = 20 x 8 = Rs.160

(ii) Price at which the rights issue will be made :

= 0.75 x 160 = Rs.120

(iii) Number of new shares that will be issued :

$\frac{\text{Rs.2,40,00,000}}{\text{Rs. 120}}$ = 2 lakh shares

(iv) The value of rights :

= $\frac{r(M - S)}{N + r}$ = $\frac{2 \text{ lakh x Rs.}(160 - 120)}{(4 + 2) \text{ lakh}}$

= $\frac{40 \times 2}{6}$ = Rs.13.33 where, r = Nos of right issue
N = Nos of Existing shares
M = Market price
S = issue price of rights

(v) Ex-rights price is :

$[\text{Rs.160} \times \frac{4 \text{ lakhs}}{6 \text{ lakhs}}] + [\text{Rs.120} \times \frac{2 \text{ lakhs}}{6 \text{ lakhs}} \times \frac{0.15}{0.125}]$

= Rs.106.67 + Rs.48 = Rs.154.67

Question No.2. (b) B.K. Construction Ltd. (BKCL) commenced construction of a cement factory in Jhargram on 1.04.2003 for Royal Industries Ltd., one of its customers. The contract price was fixed at Rs.150 lakh and the initial estimate of total construction cost

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was Rs.128 lakh. AT the end 2003-04, the initial estimate of cost was revised to Rs.129 lakh.

Royal Industries Ltd. approved a variation in 2004-05 and agreed to increase the contract price to Rs.156 lakh. The contractor (BKCL) estimated additional cost of Rs.3 lakh for the variation. The contractor (BKCL) determines the stage of completion of the contract by calculating the proportion that contract costs incurred for work performed up to the reporting date bear to the latest estimated total contract costs.

It took three years to complete the construction. Costs incurred are as follows :

Year	Costs (Rs. In lakh)	
2003-04	38.70	
2004-05	61.80	(including stock of materials as on 31.03.05 Rs.)
2005-06	33.15	(including opening stock of materials Rs.1.50 lakh)
Total	Rs.133.65	

You are required to work out :

(i) Total estimated contract costs;

(ii) Stage of completion – percentage;

(iii) Contract revenues; and

(iv) Profit/(Loss) on the contract of B.K. Construction Ltd. – for the year ended March 31, 2004, March 31,2005, March 31, 2006 with reference to the relevant Accounting Standard.

2 + 2 + 1 + 3

Answer to Qn. No. 2 :

(b)

B.K. CONSTRUCTION LTD.

STATEMENT SHOWING STAGE OF COMPLETION, CONTRACT COSTS, CONTRACT REVENUESAND CONTRACT PROFIT/(LOSS) FOR THE YEAR ENDED

Stage of completion and Revenue to be recognized (Rs.lakh)

PARTICULARS		March 31 2004	March 31 2005	March 31 2006
Cumulative costs incurred to date		38.70	100.50	132.15
Less : Year end (March '31) stock Of materials		-	1.50	-
Net Contract Costs incurred to date (Rs.lakh)	(A)	38.70	99.00	132.15
Contract Costs to complete	(B)	90.30	33.00	-
(i) Total Estimated Contract Costs	(D)	129.00	132.00	132.15
(ii) Stage of Completion (%) A/D x 100		30	75	100
(iii) Contract revenues earned cumulative (%)		30	75	100
Contract revenues earned Cumulative (Rs.)		45.00	115.20	156.00
(iv) Contract revenues earned year (Rs.) (E)		45.00	70.20	40.80
Contract Costs for year (Rs.) (F)		38.70	60.30	33.15
Profit / (Loss) for the year (E-F)		6.30	9.90	7.65

Question No. 3. All of the 100 accountants employed by Molson Ltd. are offered the opportunity to attend six training courses per year. Each course lasts for several days and require the delegates to travel to a specially selected hotel for the training.

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The current costs incurred for each course are :

Delegate Costs :

	Per delegate Per course (Rs.)
Travel	200
Accommodation, food and drink	670
	870

It is expected that the current delegate costs will increase by 5% per annum.

Course Costs :	Per course (Rs.)
Room hire	1500
Trainers	6000
Course materials	2000
Equipment hire	1500
Course administration	750
	11750

It is expected that the current course costs will increase by 2.5 per cent per annum.

The Director (HRD) of Molson Ltd. is concerned at the level of costs that these courses incur and has recently read an article about the use of the internet for the delivery of training courses (e-Learning). He decided to hire an external consultant at a cost of Rs.5000 to advise the company on how to implement an e-Learning solution. The consultant prepared a report which detailed the costs of implementing and running an e-Learning solution :

	Notes	Rs.	
Computer Hardware	(1)	15,00,000	
Software Licences	(2)	35,000	per annum
Technical Manager	(3)	30,000	per annum
Camera and Sound Crew	(4)	4,000	per course
Trainers and Course materials	(5)	2,000	per course
Broadband Connection	(6)	300	per delegate per annum

Notes :

(1) The Computer Hardware will be depreciated on a straight line basis over 5 years. The scrap value at the end of five years is expected to be Rs.50,000.

(2) The Company would sign a software licence agreement which fixes the annual software licence fee for 5 years. This fee is payable in advance.

(3) An employee working in the I.T. Department currently earning Rs.20,000 per annum will be promoted to Manager (Technical) for this project. This employee's position will be replaced. The salary of the Technical Manager is expected to increase by 6 percent per annum.

(4) The Company supplying the camera and sound crew for recording the courses for internet delivery has agreed to hold its current level of pricing for the first 2 years but then will increase costs by 6 per cent per annum. All courses will be recorded in the first quarter of the year of delivery.

(5) The trainers will charge a fixed fee of Rs.2000 per course for the delivery and course material in the year and expect to increase this by 6 per cent per annum thereafter. The preparation of the course materials and the recording of the trainers delivering the courses will take place in the first quarter of the year of delivery.

(6) All of the accountants, utilizing the training courses will be offered Rs.300 towards broadband costs which will allow them to access the course from home. They will claim this expense annually in arrears. Broadband costs are expected to decrease by 5 per cent per annum after the first year as it becomes more widely used by Internet users.

Molson Ltd., uses a 14 per cent cost of capital to appraise projects of this nature, ignore taxation.

Requirement :

As the Management Accountant for MOLSON LTD., prepare a financial evaluation of the options available to the company and advise the Director on the best course of action to take, from a purely financial point of view,

Note : Extract from the table :

The Present Value factor at 14% Discount rate are :

Year :	0	1	2	3	4	5
P/V :	1.000	0.877	0.769	0.675	0.592	0.519

6 + 8 + 2

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Answer to Qn. No.3 :

MOLSON LTD.

STATEMENT SHOWING N P V OF TOTAL COSTS UNDER CURRENT SITUATION :

(Rs.in thousand)

YEARS	CASH FLOW (OUT)			Discount Factor	Present Value
	Delegate Costs	Course Costs	Total Costs	At 14%	(P.V)
1	522.00	70.50	592.50	0.877	519.62
2	548.10	72.26	620.36	0.769	477.06
3	575.51	74.07	649.58	0.675	438.47
4	604.29	75.92	680.21	0.592	402.68
5	634.50	77.82	712.32	0.519	369.70
				N P V	2207.53

Workings :

Cost / Delegates :

(A) Travel : Rs. 200 (B) Total costs of 100 delegates and 6 courses per annum

Admistration.

Food & Drinks Rs.670

Rs.870 = 870 x 100 x 6 = Rs.5,22,000 ✓

Course costs per annum :

Rs.11750 x 6 courses = Rs.70,500 ✓

STATEMENT SHOWING N P V OF TOTAL COSTS UNDER PROPOSED E-LEARNING SOLUTION

(Rs. In thousand)

YEAR	CASH FLOW (OUT)			Discount Factor(DF) at 14%	Present Value (PV)
	Implementation & Running costs (Excluding Broad Band cost)	Broad Bank connection cost	Total		
0	1535.00	-	1535.00	1.000	1535.00
1	101.00	30.00	131.00	0.877	114.89
2	103.52	28.50	132.02	0.769	101.52
3	107.63	27.08	134.71	0.675	90.93
4	111.99	25.73	137.72	0.592	81.53
5	81.61	24.44	106.05	0.519	55.04
5	(50.00)	-	(50.00)	0.519	(25.95)
	(Cash inflow)			NPV	1952.96

Workings : Rs. in 000

		0	1	2	3	4	5
Hardware		1500.00	-	-	-	-	-
Software		35.00	35.00	35.00	35.00	35.00	-
Technical Manager	30.00						
Trainers & materials	12.00						
	42.00	-	42.00	44.52	47.19	50.12	53.02
Camera & Sound		-	24.00	24.00	25.44	26.97	28.59
Total		1535.00	101.00	103.52	107.63	111.99	81.61
Scrap Value at the end of 5 yerars, Hardware	-	-	-	-	-	-	50.00
Boardband Connection		-	30.00	28.50	27.08	25.73	24.4

Recommendation : The e - learning solution should be implemented, as it is the least cost option for the company.

Question No.4. (a)Coomer Ltd. has at the beginning of a period 1,00,000 Equity Shares of Rs.10 each and 12% long-term debt of Rs.8,00,000. The finance department of the company has generated the following forecast financial statistics for the period :

Return on Total Assets (ROTA) (PBIT / Total Assets)	20%
Debt Ratio (External Liabilities / Equity)	0.80
Effective Interest Rate (EIR) (Interest Expense / Total Liabilities)	8%
Current Assets to Fixed Assets	0.5 : 1
Tax Rate	40%

The Assets, Liabilities and Equity figures used to compute the above financial statistics are based on forecast period-end balances. The company has no plan to change its equity share capital and long-term debt.

You are required to :

(i) Prepare the forecast balance sheet as at the end of the forecast period with as many details as possible ; and

(ii) Fore cast Earnings per Share (EPS).

Show necessary workings.

4 + 2 + 4

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Answer to Qu. No. 4 : (a)

(i) Forecast Balance Sheet :
Balance Sheet as on .....

	Amount Rs		Amount Rs
Equity shares (Rs.10)	10,00,000	Fixed Assets (3)	18,00,000
Retained Profits (2)	5,00,000	Current Assets (3)	9,00,000
10% Long Term Debt	8,00,000		
Other Liabilities (1)	4,00,000		
	27,00,000		**27,00,000**

(ii) E P S :

$$EPS = \frac{(1-T)\,[\,ROTA + (ROTA - EIR)\ L/E\,]\ E}{N}$$

$$= \frac{(1-0.4)\,[\,.2 + (.2 - .08)\ X\ .8]\ X\ Rs.15,00,000}{1,00,000}$$

$$= \frac{.6\,[.2 + .096]\ x\ Rs.15,00,000}{1,00,000}$$

= Rs.2.66

Workings :

(1) External Liabilities :

EIR = Internal Expense (I) / Total Liabilities (L) = .08

= Rs. 8,00,000 x .12 / Interest bearing Debt + other Liabilities

= Rs. 96,000 / Rs.8,00,000 + OL = .08

OL = Rs. 4,00,000

Total Liabilities = Rs.8,00,000 + Rs. 4,00,000
= Rs.12,00,000

Workings :

(2) Retained Profits (RP) :

Debt Ratio = L/E = .8

=> L = .8E

=> Rs.12,00,000 = .8E

∴ Equity = Rs.15,00,00

RP = Rs.15,00,000 – Rs.10,00,000
= Rs. 5,00,000

(3) Fixed Assets and Current Assets :

TA = L+E
= Rs.12,00,000 + Rs.15,00,000 = Rs.27,000,00

FA + CA = Rs.27,00,000
FA + .5 FA = Rs.27,00,000

∴ FA = Rs.18,00,000
CA = .5 x Rs.18,00,000 = Rs.9,00,000

Question No. 4. (b) Throughout the year ended 31st March, 2005 C.L.C. Ltd. had in issue Rs.4,00,000 8% convertible debentures. The terms of conversion for every Rs.1000 of debentures are as follows :

31st March, 2005	120 Equity Shares
31st March 2006	115 Equity Shares
31st March 2007	110 Equity Shares

Profits attributable to equity shareholders for the year amounted to Rs.5,00,000. The weighted average number of equity shares in issue during the year was 2,00,000. The tax rate is 40%.

Calculate :
(1) Fully diluted earnings ; and
(2) Fully diluted earnings per share

3 + 3

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Answer to Qn. No. 4 : (b)

Earnings (Profits)		Rs.5,00,000
Interest Savings	Rs.32,000	
Less: Tax (40%)	Rs.12,800	Rs. 19,200
Fully Diluted Earnings		Rs.5,19,200
Adjusted No. of Shares		2,00,000
Dilution	Rs. 4,00,000 x 115 / Rs.1000	46,000
Fully Diluted No. of Shares		2,46,000

Fully Diluted Earning per share = Rs.5,19,200 / 2,46,000 = Rs.2.11

Question No. 5. (a) What are the most common option trading strategies ? Give a brief description of each such strategy.

5

Answer to Qn. No. 5. (a)

Investors buy options as a way of speculating on short-term movements in security prices or stock market indices. Options are rights without obligations. If an investor believes that a security will rise in price, he may buy a call option. He may buy a put option if he expects that the security will fall in price. Investors involved in option trading normally trade in several options at the same time. There is one option strategy known as straddle, which involves buying both a call and a put with the same exercise price and the same expiration date. It is essentially a bet on the volatility of the underlying security.

Another common option strategy is a spread. Spreads involved purchasing one option and writing another on the same underlying security. The options differ only in terms of one parameter – either exercise price or expiration date. The most widely used spread is a money spread. This involves the purchase of one call or put option and the sale of another. The options have the same expiration date but different exercise prices.

Investors often use options to combine them with positions in underlying securities. These combined positions are generally referred to as hedges. The common techniques are : writing covered calls, buying protective puts and covering short sales.

Question No.5. (b) Quickset Company's equity shares are currently selling at a price of Rs.400 each. An investor is interested in purchasing Quickset's shares. The investor expects that there is a 70% chance that the price will go up to Rs.550 or a 30% chance that it will go down to Rs.350, three months from now. There is a call option on the shares of Quickset that can be exercised only at the end of three months at an exercise price of Rs.450.

(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 3 month period, what is the value of the option at the beginning of the period ?

(iv) What is the expected return on the option ?

3 + 3 + 3 + 2

Answer to Qn. No. 5. (b)

(i) If the share price increases to Rs.550, the option will be worth Rs.100 (Rs550-450). If the price reduces to Rs.350, it will be worth zero, The hedge ratio. therefore, will be :

HR = (Rs.100 – 0) / (Rs.550 – Rs.350) = ½

The investor will be required to purchase one share for every two call options.

(ii) Value of Hedge at Rs.550
V H = 1 x Rs.550 – 2 x Rs. 100 = Rs.350
Value of Hedge at Rs. 350
V H = 1 x Rs.350 – 2 x 0 = Rs.350

The position is unchanged.

(iii) Value of option at the beginning :

Vb = (Rs.400 – 2 vb) (i.05) = Rs.350
=> 2.10 vb = Rs.70
vb = Rs.33.33

(iv) Expected option value

EV = (Rs.550 – Rs. 450) (.7) + 0 x .3

= Rs. 70.

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Expected Return

E R = (Rs.70 – Rs.33.33) / Rs. 33.33

= 1.10 = 110%

Question No. 6. (a) What are the arguments for and those against for inclusion of Intangible assets in fin ancial statements ? 4 + 2

Answer to Qn. No.6 : (a)

The arguments for and against inclusion of intangible assets in the financial statements are enumerated below :

Arguments for inclusion of intangible assets :

(i) Non-inclusion of financial assets in financial statements impair true and fair view. Financial statements should reflect all the strength and weakness of the enterprise.

(ii) Inclusion of intangible assets in financial statements forces the managers of the enterprise to consider the value of the company rather than its short term profitability.

(iii) Information on intangible asset is material for valuing equity shares being traded in the capital market.

(iv) Exclusion of intangible assets from financial statements contravenes the matching concept.

(v) It is considered inappropriate by many not to consider intangible assets in the financial statements for enterprises where, knowledge capital is the most important resource.

Arguments against inclusion of intangible assets :

(i) There is high level of subjectivity in all areas of intangible assets. It is difficult to estimate the cost or fair value and useful life of intangible assets.

(ii) Rules permitting recognition of intangible assets might be misused to manage earnings.

Question No. 6: (b) As a financial analyst of Wilson Electronics Ltd. (WLL) you are requested to determine the Weighted Average Cost of Capital (WACC) of the company using Market Value Weights. The following information is available for your perusal.

The Company's present book value Capital Structure is :

	Rs.(Lakh)
Equity shares (Rs.10 per share)	270
Reserves	180
9% Preference shares (Rs.10 per share)	90
10% Debentures (Rs.100 per debenture)	90
12% Term loans	270
	900

All these Securities are traded in the Capital Market.
Recent prices are :

Ex-dividend equity share price	Rs.15
Ex-dividend preference share price	Rs.12
Ex-interest debenture market value	Rs.103

Additionally the following information are available :

Company's Equity beta – 1.06
Yield on long-term treasury bonds – 10%
Stock market risk premium – 6%
The debentures are redeemable after 3 years and interest is payable annually.
Corporate tax rate – 35%

Note : Ignore floatation costs and transaction costs. 2 + 3 + 5

Answer to Qn. No. 6 : (b)

WILSON ELECTRONICS LTD.

Market Values of the component Sources of Capital

	Rs.in lakh
Equity Shares (270 / Rs.10) x Rs.15	405.00
Preference Shares (90 / Rs.10) x Rs.12	108.00
Debentures (90 / Rs.100) x Rs.103	92.70
Terms Loans	270.00
	875.70

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(i) Cost of Equity Capital : $Ke = Rf + b\ (Km - Rf)$

Rf = Risk free Rate (Treasury Bond) = 10%
Km = Required rate of return on Market portfolio Assets
Market risk Premium = (Km – Rf) = 6%
b = Equity Beta = 1.06
Ke = 0.10 + 1.06(0.06) = 0.10 + 0.0636 = 0.1636 i.e. 16.36%

(ii) Cost of Preference Shares = $Kp = \frac{D}{PO} = \frac{0.9}{12} = 0.075$

i.e. 7.5%

D = Annual Dividend
PO = Expected Sales price of preference shares

(iii) Let the pre-tax Cost of 10% Debenture = Kd

Then, $103 = \frac{10}{(1+Kd)} + \frac{10}{(1+kd)^2} + \frac{110}{(1+kd)^3}$

Year	Co	PVIFA at		Total	P V at
		8%	9%	8%	9%
1 – 3	Rs.10.00	2.577	2.531	Rs.25.77	25.31
3	Rs.100.00	0.794	0.772	79.40	77.20
				Rs.105.17	Rs.102.51

By Interpolation, Kd = 9% - (Rs.0.49 / Rs.2.66 = 0.1842)

Kd = (9 – 0.1842) % = 8.82%

(iv) Pre-tax Cost of Term Loan, Kt = 12%

Computation of Weighted Average Cost (WACC) at Market Value Weights :

Sources	Weights	Cost (%) (Pre-tax)	Cost (%) (1-0.35)K	Total Cost (%)
Equity Shares	405/875.70 = 0.463	16.36	16.36	7.58
9% Preference shares	108/875.70 = 0.123	7.50	7.50	0.92
10% Debentures	92.7/875.7 = 0.106	8.82	5.73	0.61
12% Term Loans	270/875.70 = 0.308			
	1.00	12.00	7.80	2.40
				11.51

Hence Weighted Average Cost of Capital (WACC) is 11.51%

Question No. 7. (a) The Accounts of Siteraze Ltd. (SL) engaged in manufacturing business are summarized below :

INCOME STATEMENT FOR THE YEAR ENDED MARCH 31,2005

(Amount in Rs. Million)

Sales Revenue			95.00
Less : Cost of goods sold		59.10	
General expenses		6.80	
Administrative expenses		7.80	
Selling and distribution expenses		2.90	
Interest on loan		1.80	78.40
Earnings Before Tax (EBT)			16.60
Less Corporate Taxes (0.35)			5.81
Earnings After Taxes (EAT)			10.79

BALANCE SHEET AS AT MARCH 31, 2005

(Amount in Rs. Million)

Liabilities		*Assets*	
Equity share capital		Freehold land and buildings (net)	20.00
(10 lakh shares of Rs.10 each)	10.00	Plant and machineries (net)	28.50
Reserves and surplus	31.50	Current Assets :	
10% Loan	18.00	Stock	10.00
Creditors and other liabilities	18.00	Debtors	15.00
		Bank and cash balances	4.00
	77.50		77.50

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Additional Information :

1. The risk free rate of return in the economy is 8% and the premium expected from business in general is 5%. The beta of Siteraze Ltd. shares is currently 1.27.

2. The equity shares of this company (SL) quoted in the market as on 31.3.2005 are Rs.50 per share.

3. General expenses include R & D expenses of Rs.0.50 million.

Note : For EVA computation R & D expenses are to be considered as an investment.

Requirements :

(i) Determine the Economic Value Added (EVA) for the year ended March 31, 2005 and

(ii) Determine the amount of Market Value Added (MVA) of the year ended March 31, 2005. 5 + 2 + 3

Answer to Qn. No. 7: (a)

SITERAZE LTD.

(i) DETERMINATION OF ECONOMIC VALUE ADDED (EVA) FOR THE YEAR ENDED MARCH 31, 2005

	(Amount in Rs.Million)
Net Profit after Tax and Interest	10.79
Add: Tax Adjusted Interest [(Rs.1.80) x (1-0.35)]	1.17
Profit after Tax before interest	11.96
R & D Expenses, reintegrated (As investment)	0.50
Net operating profit a ter Taxes (NOPAT)	12.46
Less : Cost of Capital Employed (Rs.60.00 Million x 0.12 (WACC)	7.20
ECONOMIC VALUE ADDED (EVA) :	5.26

Workings :

Capital Employed : (Rs.Million)

Share Capital	10.00
Reserve & Surplus	31.50
Adjustment for R & D	0.50
Equity Capital	42.00
10% Loan	18.00

CAPITAL EMPLOYED 60.00

Weighted Average cost of Capital : (WACC) :

(i) Cost of Equity : 8% + (1.27 x 5%) = 14.35%

(ii) Cost of Debt = 10%

W A C C : 14.35 X 0.70 = 10.045

10(1 – 0.35) X 0.30 = 1.950

11.995 i.e. 12%

(ii) DETERMINATION OF MARKET VALUE ADDED FOR THE YEAR ENDED MARCH 3, 2005

1.	Market value per equity share (Rs)	50.00
2.	Number of Equity share outstanding (Nos)	10 lakhs
3.	Total Market value (1 x 2) (Rs. Million)	50.00
	Less : Value of Eqity Funds : (Rs.Million) (Share capital 10 Million + Reserve & surplus 31.5 Million + R & D Adjustment 0.50 million)	42.00
	MARKET VALUE ADDED (MVA) (Rs. Million)	8.00

Question No. 7. (b) The following information are available from a Merchant Bank :

Company	Forecast Equity Return (%)	Standard Deviation of total Equity Return (%)	Covariation with Market Return (%)
Infosys	16.00	6.3	32
HLL	12.00	4.8	19
Reliance	14.00	4.7	24
Tata Motors	19.00	6.9	43

The market return and the market standard deviation are 14.50 per cent and 5 per cent respectively and the risk-free rate is 6 per cent.

Required :

Estimate the " ALPHA " Value of each of these companies' shares. 2 + 4

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ıswer to Qn. No. 7 : (b)

The Alpha value is the difference between

(i) The actual or forecast rate of return from an investment and
(iii) The required return as computed from the capital asset pricing model (CAPM) using beta value of the investment.

Company	Cov (X,Y)	Variance (X) α^2	Beta (β) [Cov (XY) / Var (X)]
INFOSYS	32	25	1.28 = (32/25)
HLL	19	25	0.76 = (19/25)
RELIANCE	24	25	0.96 etc.
TATA MOTORS	43	25	1.72

Where, Y is the Share and x is the Stock Market as a whole.

The required return of each investment is estimated by the CAPM formula :

$E(r_j) = r_f + E(r_m - r_f)\,ß\,j$ Where $r_f = 0.06$ given

$= 0.06 + (0.145 - 0.06)\,ß$ rm= 0.145 , ,

ESTIMATION OF ALPHA VALUES :

Company	CAPM. Required Return	Forecast Returns	Alpha value
(1)	(2)	(3)	(4)=(3-2)
INFOSYS	0.06+0.085 X 1.28 = 16.88%	16%	- 0.88%
H L L	0.06+0.085 X 0.76 = 12.46%	12%-	- 0.46%
RELIANCE	0.06 + 0.085 X 0.96 = 14.16%	14%	- 0.14%
TATA MOTOR	0.06 + 0.085 X 1.72 = 20.62%	19%	- 1.62%

)uestion No. 8. Write a short notes on the following :

(a) Accounting for knowledge assets :
(b) Global Reporting Initiative (GRI) :
(c) Segment reporting.:
(d) Treatment of impairment losses of an individual asset.

4 x 4

Answer to Qn. No. 8 :

(a) Accounting for knowledge Assets :

The advent of the information – age economy has radically changed the way business conduct their operations and achieve success. In the new economy knowledge assets have become the primary value creating assets in many fields of business. But the accounting system currently being used does not adequately capture the knowledge assets of businesses. As a result, most of the knowledge assets are missing from the Balance Sheet.

Knowledge assets are intangible sources of value. Their principal ingredients are information and knowledge. There are several categories of knowledge assets.

These are :

(i) Market Assets (Brands, Licences, Francises)
(ii) Human centred assets (Employee skills, talents and innovative capabilities)
(iii) Intellectual property (patents, copyrights, trade marks, trade names)
(iv) Infrastructure assets (Technologies, organizational structures, processes).

Effects are now being made to develop effective system of recognition, measurement and disclosure of knowledge assets. Enterprises are being encouraged to provide information about their knowledge assets on a supplementary basis in the annual reports. Many progressive companies throughout the world have already begun publishing statements of knowledge assets in the supplementary section of their annual report. It will still take some time for knowledge assets accounting to take a consistent and for coherent shape.

(b) Global Reporting Initiative (GRI):

The Global Reporting Initiative (GRI) is long term multistakeholder, international undertaking whose mission is to develop and disseminate globally applicable sustainability reporting guidelines for voluntary use by organizations reporting on the economic, environmental and social dimensions of their activities, products and services. The GRI's sustainable reporting guidelines issued in June,2000 encompass the three linked elements of sustainability as they apply to an organization.

(i) Economic : Including, for example, wages and benefits, labour productivity, job creation, expenditure on outsourcing and investments in training and other forms of human capital.

(ii) Environmental : Including, for example, impact of processes products and services on air, water, land, bio-diversity and human health.

(iii) Social : Including, for example, work place, health and safety, employee retention, labour rights, and wages and working conditions at out sources operations.

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In the current guideline, these three elements are largely treated as separate reporting elements. However GRI plans to move towards a reporting framework that links the economic, environmental and social elements to form a more integrated reporting structure.

(c) Segment Reporting :

Many enterprises provide groups of products or services or operate in geographical areas that differ in terms of profitability, opportunities for growth, future prospects and risks. Therefore, in absence of segment information, analysts find it difficult to analyse financial statement. AS-13 classifies segments into "business segment" and "Geographical Segment". In deciding whether a segment is different from others, one has to make a judgement on whether risks and returns for the segment are different from others. The organizational structure of an enterprise and its internal financial reporting system normally form the basis for identifying business and geographical segments. AS-17 provides two reporting formats : Primary and Secondary Reporting Formats. AS-17 does not require the reporting enterprise to provide information for every business segment. Enterprises are required to present information for reportable segment only. AS-17 stipulates that an enterprise should disclose the following for each primary reporting segments :

1. Segment revenue, classified into external and internal sales;
2. Segment result;
3. Total carrying amount of segment assets;
4. Total amount of segment liabilities;
5. Total capital expenditure incurred during the period;
6. Depreciation and amortization in respect of segment assets ; and
7. Total amount of significant non-cash expenses, other than depreciation and amortization.

(d) Treatment of impairment losses of an individual assets.

The impairment loss of an individual asset is the difference between its carrying amount and the recoverable value. The accounting treatment of this loss is governed by AS-28. According to the provisions of the standard, the carrying amount of the asset is to be reduced to the recoverable value by deducting the impairment loss and the loss is to be taken as expense in the profit and loss account. AS-28 also stipulates that all enterprise should assess at each balance sheet date whether there is any impairment. If the estimated impairment loss is greater than the carrying amount, the difference is to be treated as a liability.

When an impairment loss is recognized, the future depreciation of the assets is to be computed based on the revised amount.

FINAL EXAMINATION –STAGE IV
(REVISED SYLLABUS)

SUGGESTED ANSWERS TO QUESTIONS

December 2005

PAPER 19 : Cost Audit and Management Audit

Answer Question Nos. 1 and 5 , *which are compulsory and* two each *from the remaining questions of Section I & II.*

SECTION -I (50 marks)

1.(a) State whether the following statements are "True" or "False". No reason or explanation need be given: 1X10

(i) Cost Audit is a type of efficiency audit and not a propriety audit.
(ii) The liberalization of the economy has diminished the utility of Cost Audit
(iii) The formation of Audit Committee is a big leap in ensuring better corporate governance.
(iv) India is the first country in the world in introducing the provisions of compulsory maintenance of the Cost Accounting records.
(v) The Cost Auditor cannot be the Internal Auditor of a Company for the period for which he is conducting the Cost Audit.
(vi) The Annexure to the Cost Audit Report (paras 1 to 28) is to be prepared by the Cost Auditor.
(vii) The Cost Auditor is appointed in the Annual General meeting of the Company.
(viii) The Proforma (product cost sheet) attached to the Cost Audit Report should be prepared separately for sale to any related party.
(ix) Non-moving stock of raw materials and components are those stocks which have not moved for more than 24 months.
(x) The Cost Auditor is a member of the Audit Committee of the Company.

(b) State with reasons whether the following activities amount to professional misconduct: 2X5

(i) A Cost Accountant takes voluntary retirement from his employer and starts practice. He continues his association with his previous employer as an advisor, on a monthly retainership basis.

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(ii) A Cost Accountant gives a certificate of cost for a product manufactured by a SSI unit, owned by his son.

(iii) A Practising Lawyer specializing in 'Anti-dumping cases' comes to an informal understanding with a practicing Cost Accountant to assist him in preparing accounting statements to support his cases and agrees to share his fees on a percentage basis.

(iv) A Practicing Cost Accountant accepts an assignment previously held by another Cost Accountant in practice, after due communication with him in writing .

(v) Shares information acquired in course of his professional engagement to any person, other than the client so engaging him.

Answer to question no. 1(a).

(i) False
(ii) False
(iii) True
(iv) True
(v) True
(vi) False
(vii) False
(viii) True
(ix) False
(x) False

Answer to question no. 1(b).

(i) As the Cost Accountant has served his connection with his previous em ployer as an employee and acts only in an advisory capacity, which is a legitimate activity of a practicing Cost Accountant, it does not amount to misconduct.

(ii) Strictly speaking, a Cost Accountant issuing a certificate for a unit, in which he has no direct interest is in order. In the instant case, since the Cost Accountant's son owns the SSI unit, it would be prudent on the part of the Cost Accountant to desist from issuing such a certificate on moral grounds.

(iii) Although the practicing Cost Accountant can accept the assignment for preparing statements for the 'Anti-dumping' cases for specified fees, the sharing of total fees on a percentage basis between the lawyer and the Cost Accountant amounts to an informal partnership between them, which is prohibited.Therefore, this practice would fall under the definition of misconduct.

(iv) This acceptance of same assignment as a practicing Cost Accountant previously held by another practicing Cost Accountant does not amount to misconduct. It would have been misconduct if this acceptance had been done, without first communicating in writing with the previous Cost Accountant.

(v) The sharing/disclosing of any information, so acquired in the course of his professional engagement (as a Cost Accountant) with any person, other than the client so engaging, without the consent of such a client will be an act of professional misconduct.

2. As a Cost and Management Auditor, you are asked to look into the proposed decision of acompany to temporarily suspend operations due to depressed market conditions. The data available are:

Budgeted level (per annum)	Capacity Utilisation 60%	80%
	Rupees in '000	
Direct Material	180	240
Direct Labour	240	320
Production overhead	126	138
Administrative overhead	62	66
Selling & Distribution overhead	68	74
Total:	676	838

The company is likely to operate at 50% capacity only and the turnover is expected to be Rs. 4,95,000 p.a. Market Research indicates that the depression will be over in a year and after that they can effect a sale of Rs. 9,00,000 p.a. utilizing 75% 0f capacity.

If operations are suspended for a year, the following cost will be incurred:
—— Fixed cost Rs. 40,000;
—— Settlement with labour force will cost Rs. 35,000;
—— Maintenance of plant will continue and cost Rs.10,000:
—— Cost of re-opening will be Rs. 10,000.

Draft a report to the Management of the following two options:
(i) To suspend production for one year and restart thereafter when market improves.
(ii) To continue production at 50% capacity level. 15

Answer to question no.2

To

The Managing Director,

_____

Dear Sir,

Sub: Report on proposal for temporary suspension of Operations due to depressed market conditions.

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This has reference to your letter no_____ dated_____

As desired, I have examined carefully both the options that are available viz.,

(i) To suspend production for one year and restart thereafter when market improves, or

(ii) To continue production at 50% capacity level.

Due to depressed market condition, the plant has to be operated only at a low cost capacity utilization of 50%. The market research report has predicted that the adverse market conditions are going to be a temporary phenomenon for a period of only one year.

Thereafter, the market conditions shall improve considerably due to which it would be possible to operate the plant (after one year) at 75% capacity utilization with a turnover of Rs. 9,00,000.

Details pertaining to the feasibility of both the options are as under :

Option-1: Suspension of Production for one year.

As per the question, the following cost will be incurred:

	Rs.
Fixed Cost	40,000
Settlement with labour	**35,000**
Plant maintenance	**10,000**
Cost of re-opening	10,000
Total	95,000

Option-II: **Continue operations at 50% capacity level.**

	50% Capacity Current Year Rs.	75% Capacity Next Year Rs.
Direct Materials	1,50,000	2,25,000 (Note- 1)
Direct Labour	2,00,000	3,00,000 (Note- 2)
Production Overhead	1,20,000	1,35,000 (Note- 3)
Administrative Overhead	60,000	65,000 (Note- 4)
Selling & Distribution Overhead	65,000	72,500 (Note- 5)
Total Cost	5,95,000	7,97,500
Sales	4,95,000	9,00,000
Profit/Loss	(-)1,00,000	(+) 1,02,500

Analysis of the above Comparative data shows that if the company continues operations at 50% capacity, there will be a loss of Rs.1,00,000.
If, on the other hand, operations are suspended for one year, the loss will be Rs.95,000. Thus if operations are continued, there will be an additional loss of Rs. 5,000.
If the operations are suspended, the company may have to encounter the following problems :
Once operations are suspended, the company may face a lot of practical difficulties for resuming production like
—Recruitment of new personnel,
—Link with old customer will be broken,
—it may have an adverse effect on the image of the company,
Attaining 75% capacity utilization immediately after closer for a year may not be easy to achieve.
It may therefore be seen from above that even though the Company may save just Rs.5,000.merely by suspending operations for a year, but by doing so it may have to face a lot of difficulties as listed above.

Final Recommendation: The company is advised to continue production at 50% capacity utilization and never mind the small loss of Rs.5,000 by continuing production in view of factors discussed above.

Hope you would find the above report and analysis to be in order .
Thanking you very much,
Sd/-
(Cost and Management Auditor)

Working Notes:

Note-1:
Direct Material Cost is a 100% Variable Cost
Direct Material Cost at 75% Capacity =1,80,000/60 X 75 =Rs.2,25,000.
Direct Material Cost at 50% Capacity = 1,80,000/60 X 50 =Rs.1,50,000.

Note-2:
Direct Labour Cost is a 100% Variable Cost.
Direct Labour Cost at 75% Capacity = 2,40,000/60 X 75=Rs. 3,00,000
Direct Labour Cost at 50% Capacity = 2,40,000/60 X 50=Rs. 2,00,000

Note-3:
Production Overhead is a semi-variable cost.
At 80% ,Production Overhead is Rs.1,38,000
At 60% ,Production Overhead is Rs.1,26,000
For 20% Variation, difference is Rs. 12,000
Variable production overhead at 60% capacity =12,000/20 X 60=Rs. 36,000

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Fixed production overhead =Rs.1,26,000-Rs.36,000=Rs.90,000
Thus at 50% capacity, Fixed production overhead = Rs.90,000 and
Variable production overhead =Rs.36,000/60 X 50=Rs.30,000
Therefore at 50% capacity, total production overhead =Rs.90,000+Rs.30,000=Rs.1,20,000
Similarly at 75% capacity,
Variable production overhead =36,000/60 X 75=Rs.45,000
Therefore, Total Production Overhead at 75% Capacity=Rs.90,000+Rs.45,000=Rs.1,35,000

Note-4:
Administrative overhead is a semi-variable overhead.
At 80% capacity, Administrative overhead =Rs.66,000
At 60% capacity, Administrative overhead =Rs.62,000
For 20% difference, - - =Rs. 4,000
At 60% capacity.
Variable Administrative Overhead =Rs.4000/20 X 60=Rs.12,000
Therefore, Fixed Administrative Overhead= Rs.(62,000-12,000)=Rs.50,000
Similarly, at 50% capacity.
Variable Administrative Overhead =Rs.12,000/60 X 50=Rs.10,000

Therefore, Total Administrative overhead at 50%=Rs.10,000+Rs.50,000
(Variable) (Fixed)
=Rs.60,000
At 75% Capacity, Variable Administrative O/H =12000/60 X 75=Rs.15,000
Therefore, Total Administrative O/H =Rs.15,000+Rs.50,000
(Variable) (Fixed)
=Rs.65,000

Note-5:
Selling and Distribution O/H (S&D O/H):
This is a semi-variable O/H.
At 80%, S&D O/H=Rs.74,000
At 60%, S&D O/H=Rs.66,000
For 20%Difference=Rs. 6,000
Therefore, at 60% capacity, S&D O/H =6000/20 x 60=Rs.18,000
Therefore, at 60% capacity, Fixed S&D O/H =Rs. (68,000-18,000)=Rs.50,000
Therefore, at 50% capacity Variable S&D O/H =18,000/60 X 50=Rs.15,000
Therefore, at 50% capacity Total S&D O/H =Rs.15,000 +Rs.50,000=Rs.65,000
(Variable) (Fixed)
Similarly at 75%, Variable S&D O/H =18,000/60 X 75=Rs.22,500
Therefore, Total S&D O/H at 75% capacity =Rs.22,500+ Rs.50,000=Rs.72,500
(Variable) (Fixed)

3.(a) As a cost auditor, how would you deal with the following?

(i) A company has produced all accounting records within the stipulated time for your audit. It however is unable to produce audited financial accounts, as financial audit is not yet complete.

(ii) A company has not maintained cost accounting records though having the obligation under section209(1)(d) of the Companies Act,1956.The management is of the opinion that necessary steps could be taken after the cost audit order is received from the Government. Are the directors of the company absolved of the obligation to maintain cost accounting records?

(iii) A company, which manufactures cables and conductors, has charged only a portion of the administrative overheads to cost of production and the balance to the cost of sales of its products.

(iv) A sugar mill, which produces sugar from sugarcane, uses bagasse as fuel to produce steam. In its cost statement, such input of bagasse is valued at nil value, as according to the company, it has incurred no cost in acquiring bagasse, which is only a waste product.

(v) During plant stoppages, the operational labour is being utilized by the company for cleaning, oiling and such other routine jobs of the same plant. Their wages for that period also are treated as direct wages in cost of production. 2X5

(b) What is an 'Unbalanced Plant'? What are the different options that you, as a Cost and Management Auditor, would like to offer as 'rectification techniques' to remove 'imbalances' for ensuring better economic utilization of such a plant? 2+3

Answer to question no. 3(a)

(i) In case where the Cost Audit Report is finalized with provisional figures, a forwarding letter should be attached by the Cost Auditor to the aforesaid report stating clearly that the company has been unable to produce audited financial accounts since the financial audit is not yet complete. As such the report submitted is based on unaudited/provisional figures only as has been given to him by the company. Subsequently a supplementary report should be submitted by the Cost Auditor to the Government as soon as the audited financial accounts are made available.

(ii) The obligation to maintain cost accounting records as per the rules provided u/s 209(1)(d) is a continuing one, independent of whether cost audit is ordered or not. Further the Financial auditor also has an obligation to certify under CARO that such cost records have been made and maintained. As such the directors of the company will not be absolved of the obligation under sec.209(1)(d).

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(iii) In case administrative overheads are not analyzed separately, these may be appor - tioned to the cost of production and the cost of sales on some appropriate basis. In the instant case, the company is correctly treating the administrative overheads. However, the Cost Auditor should check the following in this connection:

Apportionment of administrative overheads to the cost of production and the cost of sales is on an appropriate basis; and

This practice is consistently followed from year to year.

(iv) Bagasse is a by-product in sugar industry, which has a realizable value. As the company is using bagasse as a fuel to produce steam, the bagasse should be valued at its realizable value. Thus taking bagasse at 'nil value' is not correct.

(v) Where operating workers are required to perform certain type of work which , otherwise falls in the category of indirect labour, like oiling, cleaning, maintenance etc.. their wages should be treated as indirect wages and accordingly included in the overhead.

Answer to question no. 3(b)

An Unbalanced Plant: is a plant in which some of the machines or work centers are overworked relative to their capacities while other work centers are underutilized.
Such a plant is characterized by :

- Bottlenecks due to overworked machinery/ equipment
- Under-utilization of some machinery
- Inefficiency and high unit cost.

An unbalanced plant is a drag on the efficiency and profitability of the enterprise. Therefore, it is necessary to rectify an unbalanced plant so as to maintain proper balance, minimized costs and maximize profits.

Rectification Techniques: The following measures may be adopted for better economic utilization of an unbalanced plant:

(i) Some extra machines may be hired on rental or lease basis to ease overload on certain machines.
(ii) In case overload is a regular feature, orders may be placed for new machines, which may be fully utilized in the long run.
(iii) Multiple shifts may be introduced to stretch the capacity of overworked machines.
(iv) Overtime may be allowed to workers on bottleneck machines.
(v) Increase the speed of bottleneck machines to the maximum possible extent
(vi) Under-utilized machines may be sold out
(vii) Improvise under-utilized machines to adapt to other types of work
(viii) More orders may be procured to keep under utilized machines busy.

4.(a) The financial profit and loss account for the year 2004-05 of a company shows a net profit of Rs.26,28,000. During the course of cost audit, it was noticed that:

(i) The company was engaged in trading activity by purchasing goods at Rs.4,00,000 and selling it for Rs.5,00,000 after incurring an expenditure of Rs.25,000.
(ii) Some old assets sold of at the end-end fetching a profit of Rs.80,000
(iii) A major overhaul of machinery was carried out at a cost of Rs.4,00,000 And the next such overhaul will be done only after four years.
(iv) Interest was received amounting toRs.1,50,000 from outside invesments.
(v) Work-in-progress valuation for financial accounts does not as a practice take into account factory overhead. Factory overhead was Rs. 1,85,000 in opening WIP and Rs:3,15,000 in closing WIP.

Work out the profit as per Cost Accounts and briefly explain the adjustment, if any, carried out . 8

(b) What are the preliminary information you, as a Cost Auditor , will collect from the company which is subject to cost audit for the first time? 7

Answer to question no. 4(a)

Reconciliation Statement

	Rs.	Rs.
Profit as per Financial Profit & Loss Account		26,28,000
Add: 1. Proportionate Charge i.e., three-fourth for overhaul of machinery not provided in cost accounts	3,00,000	
2. Difference in the valuation of work-in-progress	1,30,000	4,30,000
Less: 1. Trading profit not included in cost accounts	75,000	
2. Profit on sale of old assets	80,000	
3. Interest received on outside investment	1,50,000	3,05,000
Profit as per Cost Accounts		27,53,000

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Answer to question no. 4(b)

The following information from the company is generally required by a cost auditor relating to cost audit:

1. A brief history of the company and its business activities.
2. Memorandum of Association and Articles of Association.
3. Annual reports and accounts for the last three to five years.
4. A list including addresses of all factories, branch offices and depots with the names of managers-in-charge.
5. Organization chart with details of key personnel.
6. Collaboration agreements, if any, including agreements for payment of royalty.
7. Details of manufacturing capacity – installed, licenses and utilization of installed capacity for the last three years.
8. A detailed note indicating the system and procedure followed in –
   - i. Cost department
   - ii. Financial accounting department
   - iii. Purchase, raw materials/ packing materials stores etc.
   - iv. Time office
   - v. Production department
   - vi. Sales department
   - vii. Management Information System
   - viii. Internal audit department
9. Copies of budget manual
10. Flow charts and description of manufacturing process
11. Major raw materials with quantitative details for each unit of finished output
12. Labour incentive schemes, if any
13. Details of budgetary control and standard costing procedures with treatment for variances.
14. Copies of industrial licenses, if any, issued from time to time
15. Periodical reports submitted to Excise and other Government authorities.

SECTION- II (50 marks)

5. (a) State whether the following statements are "True" or "False". No reason or explanation need be given: 1 X 10

(i) Audit of human Resources Development is outside the scope of Management Audit.

(ii) The main emphasis of Management Audit is on problem-identification rather than problem solving.

(iii) Management Audit in certain specified companies may be ordered by the Government by a special resolution.

(iv) Management Auditor should be a qualified Accountant.

(v) Management Audit imposes barriers in executive decision making.

(vi) The special audit under section 14A and 14AA of the Central Excise Audit can be conducted by the practicing Cost Accountant only.

(vii) The cost of production of goods cleared for captive consumption should be certified as per CAS-4 only by a practicing Cost Accountant.

(viii) While issuing a certificate containing a number of pages, it would suffice, if only the last page is signed by the practicing Cost Accountant.

(ix) Audit of the records of the Accounts Department is outside the scope of Management Audit.

(x) Corporate image of a company is built up not only by its product quality, but also, by its attitude towards various stakeholders.

(b) Explain in one/two sentences the main/basic difference between the following : 2 X 5

(i) Financial Audit & Management Audit;
(ii) Job-enrichment & Job Rotation;
(iii) Corroborative Evidence and Circumstantial Evidence;
(iv) Sales & Marketing;
(v) Data & Information

Answer to question no. 5(a)

(i) False
(ii) True
(iii) False
(iv) False
(v) False
(vi) True
(vii) True
(viii) False
(ix) False
(x) True

Answer to question no. 5(b)

(i) Financial Audit is intended to ensure that P/L A/c & B/s gives a true and fair view of profit or loss of the state of affairs of the business. Management Audit goes-far beyond that Financial Audit is a legal necessity whereas the Management Audit is purely voluntary.

(ii) Efforts, which are directed towards humanizing and harmonizing jobs and their contents, are known as Job-enrichment. It seeks to improve both efficiency and human - satisfaction. Job rotation refers to the practice of changing people from one job to another so that the individual jobs they perform remain as devoid of interest and personal gains.

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(iii) Corroborative evidence confirms from other sources independent of the first source- the subject matter of an issue e.g. Auditor, seeking confirmation from customers to verify balances appearing in Debtors' Ledgers. Circumstantial evidence is a type of evidence obtained from, in and around the place of incidence, which is incidental to or connected with the main issues.It is not authentic and depends on presumptions e.g. Auditor detects cash shortage and the same amount is found in the pocket of the cashier.

(iv) Sales covers execution of order and collection of money from customer, whereas marketing creates the demand for the product by advertising and other marketing techniques. Sales are one of the activities of the Marketing area.

(v) Data is the raw material and information is the final product. Information is processed data. Top management should be fed with information only as they have no time to fiddle with data.

6.(a) The Managing Director of a company wants your advise as a management auditoron the points to be considered for take over of a manufacturing company. Prepare a checklist for this purpose. 17

(b) Today's customer is the more demanding than the customer of yesterday. In view of this, how would you evaluate, as a Management Auditor, the performance of " Customer Services Department". 8

Answer to question no. 6(a)

Take over of a business of a company by another company or the merger of two business units has become quite common these days in India. It may be a case of a sick business unit being taken over by a healthy unit or taking over may be the purpose of expansion, diversification, vertical integration, etc. The Management Auditor will have to evaluate and advice on taking over or merger proposals and the terms thereof.

The following points should be kept in mind by the management Auditor while advising on the takeover of a manufacturing company:

- Legal restrictions if any under different laws like MRTP Act, FEMA, Company's law, IT Act etc.
- Reasons for the company being offered for sale. If it is a sick unit, reason for its sickness.
- The activities of the manufacturing company- Is it compatible with the company taking over or is it a diversification plan?
- Production capacity.
- Profit performance for previous 3 years.
- Projected profit performance for next 3 years.
- Order booking position.
- Competitors' profiles.
- Pattern of share holding.
- Details of financial and technical collaboration, terms and conditions regarding termination, continuation etc.

- Technological advantages, if any.
- Long term contracts entered into by the company.
- Insurance cover of its assets.
- List of major plants and equipments etc.
- Past financial records of the company, accounting system etc.
- Pending court cases, if any.
- Income tax, sales tax/VAT issues.
- Details of contingent and other liabilities not provided for.
- Raw materials and other inputs.
- Labour relations and wage rates.

Answer to question no. 6(b)

A customer is the most important person for a business because it is he who provides the profit. Therefore, the starting point in any marketing strategy is identifying the customers, their needs and organizing the efforts of the company towards satisfying such needs.

In order to create and retains customers, certain services are to be provided by properly attending to their needs and supplying right quality goods at the right price. Such services would not only stimulate the demand for the products of the company but also will help to establish product acceptability and widen the scope of potential customers.

Customer services may be evaluated on the following lines:

- Do the products manufactured by the company meet the needs of the customers of different purchasing power and different tastes?
- Are the prices of the products reasonable, considering the product quality?
- Are the prices competitive to similar other products available in the market?
- Are the customers given prompt and personal attention?
- Does the company guarantee the quality of its products?
- Does the company provide after-sales services?
- Are the customer complaints carefully and promptly attended to?
- Are spare parts of the products easily available in the company offices and in the open market?
- Are the products properly packed to avoid any damage to its products?
- Is there any provision for home-delivery services?
- Does the company undertake marketing research in regard to customer behavior and customer services?
- Does the company make use of marketing research data to improve customer services?
- Does the company's products bear ISI Mark/AGMARK?
- Are the company's products easily available at various retail outlets?
- How effective are the various channels of distribution used by the company?
- Does the company educate the customers about the use of the products through printed material and other means?
- Are the sales man retailers continuously motivated to provide the best attention and services while selling company's products?

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7. (a) What are management frauds? As a management auditor, how will you prevent and control these frauds? 2+5

(b) As a management auditor of an engineering company, you are requested to submit a report to the management suggesting suitable control procedures for wastage, scrap, spoilage and obsolescence of materials. Draft a report explaining the areas, which you would like to highlight. 8

Answer to question no 7(a)

Fraud is an intentional misrepresentation of facts. In general it is seen that top executives like Managing Directors, General Managers and other such executives, occupying top positions in an organization are found to commit management frauds. These frauds are the deception practiced by these managers so as to show their performance better than what actually they are.

The managers for their personal benefits may commit such frauds in kind or in cash. On account of their fiduciary position and having easy access to the assets and greater power to control accounting and financial statement preparation, the managers have better opportunities to defraud the company and others. Such frauds may take the form of misappropriation of assets and manipulation of records.

Control and prevention of Management Frauds:

Control and prevention of Management Frauds is the responsibility of the management. But when the top management itself is perpetuating frauds, it becomes very difficult for the auditors or for that matter anyone else to detect it.

The following measures may be adopted for the control and prevention of management frauds:

- Adequate internal control system may be introduced.
- System audit should be conducted to suggest improvement in systems and procedures.
- Organization structure of the company should be reviewed and reconstituted, if necessary.
- Personnel policies of the company should be reviewed and revised, if necessary.
- Supervision at all levels should be tightened.
- Information revealed by inter-firm comparison of performance should be thoroughly analyzed.
- Proper office procedures should be introduced.
- All significant variations from the Budgets or Standards should be checked in detail.

The top management should be basically interested to control and prevent occurrence of management frauds.

Answer to question no. 7(b)

The Managing Director,
M/s XYZ Co., Dated.....

Respected Sir,

Sub: Control procedures for Wastage, Scrap, Spoilage and Obsolescence

With reference to your letter dated.....requesting us to examine and report on the system of control and accounting of scrap, wastage, spoilages etc., in your company we would like to suggest the introduction of the following procedures/controls, with a view to ensure proper control:

Procedures/controls, with a view to ensure proper control:

- For identification of waste, scrap, spoilage and obsolete materials, standards based on their values and utility will have to be fixed.
- Output should be measured at the time of production and means to determine whether the quantity of scrap generated is normal or excessive should be established.
- Basis for reconditioning or reusing, the scrap materials should be fixed.
- The scrap generated should be properly accounted for, to avoid misappropriation. Proper arrangement should be introduced for their storage.
- The scrap should be properly graded, taking into account their utility and realizable value.
- Responsibility for sale of scrap should be fixed and scrap should be sold out at periodical intervals.
- Standard ratios should be developed to control the occurrence of spoilage depending on the conditions either normal or abnormal. Proper recording and reporting of spoilages should be done. Control over the storage and handling of spoilagess should be introduced.
- Proper basis should be introduced for reprocessing or for disposal of spoilages.
- Spoilages should be accounted for at the point of their production.
- Method of utilization of spoilages should be standardized.
- On regular basis, reports re: slow moving and nonmoving materials should be obtained and action taken to prevent unnecessary purchasing.
- System should be developed for keeping track of obsolescence items.

We would request you to kindly initiate steps for implementation of the above suggestions. Please feel free to ask for clarifications, if any.

Always we remain at your service.

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Yours faithfully,
XXXX

(Management Auditor)

8. Evaluation of the personnel function of an organization by the management auditor is by no means an easy task. In your view what are the areas to be covered and points to be kept in mind while assessing the personnel function of an organization? 15

Answer to question no. 8

It is very true that evaluation of the personnel function of an organization by the management auditor is by no means an easy task. The Management Auditor needs to cover a large number of areas during his task of assessing the personnel function of an organization.

Important Areas that are to be covere l:

In our view the following are some of the important areas that are to be covered while assessing the personnel function of an organization:

- Procedure for recruitment, promotion, transfers and training
- Action plan for reducing absenteeism.
- Method for wage payment and incentives.
- Methods developed to analyze labour turnover and steps taken for their redution.
- Steps taken for reducing accidents and preventive measures for safety.
- Welfare measures.
- Labour productivity improvements.
- Discipline and toning up employee morale.

Points to be kept in mind while assessing the personnel function of an organization:

The following are some of the important point that are to be kept in mind while assessing the personnel function of an organization:

- It is rather difficult to exactly quantify the influence or effects of the human factors and its contribution to the success or failure of the organization.
- It is also difficult to develop a yardstick for the measurement of the performance of a large group of workers in a big organization.
- The fellow workers and the industrial environment influence the workers.
- Dealing with human being is always a difficult task. It is necessary for the organization to motivate workers in a proper way and bring them together towards a common goal.
- The management auditor should assess whether the supervisors and the managers possess leadership qualities and dynamic ideas to motivate their personnel.
- The personnel function is very important function because in the absence of a well-organized personnel function, the company will not be able to utilize other resources in an optimum manner. In fact human resource is the most important asset in any organization.

SUGGESTED ANSWERS TO QUESTIONS
(REVISED SYLLABUS)

FINAL EXAMINATION
DECEMBER 2005

STAGE IV

Paper -20 : Valuations Management and Case Study

Answer *Question No.1 which is compulsory carrying 20 marks and* any five *from the rest.*

Question No.1.

(a) Attempt all the questions by selecting the correct option: **2 x 5 = 10**

(i) P/E rises when
- (a) Growth rises, discount rate falls, reinvestment rate is flat.
- (b) Growth falls, discount rate falls, reinvestment rate rises.
- (c) Growth exceeds, discount rate and reinvestment rate falls short of growth.
- (d) Discount rate falls and reinvestment rate rises.

(ii) Which of the following statements is generally descriptive of efficient markets?
- (a) Inefficiency is not consistent with discounted cash flow valuation.
- (b) The stock market 'always' (nearly so) gets it right (that is the true value of the asset).
- (c) Investors can't beat the market unless they have better information about the value of the asset.
- (d) Trading oriented strategies can beat the market.

(iii) If growth is 10%, return on new investment is 20% and discount rate is 15%, then P/E is
- (a) 1000
- (b) 100
- (c) 10
- (d) Not defined

(iv) Shareholders can align managers with enterprise goals by
- (a) Requiring more frequent and detailed reporting of operations.
- (b) Replacing debt with equity, thus forcing managers to invest in high-yield operational assets.

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© Establishment of Management By Objectives principle.
(d) Reviewing management's hiring choices.

(v) How does economic profit grow?
(e) Increase in invested capital
(f) Increase in cost of capital
(g) Increase in shareholder's return expectations
(h) Decrease in shareholder's return expectations

(b) State whether the following statements are true or false: **1 x 4 = 4**

(i) Organizational Capital is a primary component of intellectual capital (True/ False)
(ii) The PS ratio becomes higher as riskness of a firm decreases. (True/ False)
(iii) Increase in strike price increases the value of call option. (True/ False)
(iv) Zero coupon bonds do not make periodic interest payments. (True/ False).

(C) Fill in the blanks by filling the appropriate word given in the brackets: **1 x 6 = 6**

(i) Land and building is an example of _____ asset. (Real/ Financial).
(ii) The risk in holding a Government bond is _____ the risk associated with a debenture issued by a company. (More than/ Less than).
(iii) Since equity is a call option on the value of the firm, an increase in the variance in the firm value will lead to an____ in the value of equity. (Increase/decrease)
(iv) Investors expectations and the market appraisal of the performance of a firm is measured by____ (Earnings per share/ Return on equity/ Price earning ratio)
(v) Dividend discount model is a specific case of ___ valuation. (Equity/Bond/ both equity and bond).
(vi) If inflation is expected to go up in future periods, shorter term rates will be___ than longer term rates. (Higher/Lower).

Answer to Qn. No. 1

(a)	(b)	(c)
(i) d	(i) True	(i) Real
(ii) c	(ii) True	(ii) Less than
(iii) c	(iii) False	(iii) Increase
(iv) b	(iv) True	(iv) Price earning ratio
(v) d		(v) Equity
		(vi) Lower

Question No. 2 (a) Discuss various aspects of computation of economic value added and its application in business planning and valuation. **10**

(b) Explain the difference between financial and operating synergy? **6**

Answer to Qn. No. 2

(a) EVA is defined as excess profit of a firm after charging the cost of capital.
EVA = (Return on operating capital – weighted average cost of capital) x Capital [net assets]
EVA is a metric developed by Stern Stewart and is synonymous with the generic term 'economic profit'.
EVA is a specific type of residual income. It is operating profit after tax less Capital charge. EVA is an analytical tool and a management discipline to measure the performance of the firm. It shows whether management is adding or destroying value over a period of time. Performance at Board or management level or bonuses for managers can be judged or determined better by this technique.

Thus, EVA appears to offer many advantages for management as an internal measure. In the words of McLaren 'Ex-ante EVA' can be used as a tool for planning purposes (capital budgeting and operation) and 'Ex-post EVA' as a measure for control (to evaluate performance from operations) and capital budgets and to determine remuneration.

(b) Financial Synergy – It refers to (i) better use of excess cash,
(ii) a greater tax benefit from accumulated loss,
(iii) tax deductions, and
(iv) an increase in debt-equity with scope for increase in firm's value.

Operating Synergy – This is the increase in the value that accrues to a combined firm either from economies of scale or from increased sales / profits and from some exploitable opportunities like raising prices, cutting corporate overhead and eliminating waste.

Question No. 3.

(a) Halfway online, an internet service provider has 1 million existing subscribers. Each subscriber is expected to remain for 3 years. Halfway expects to generate Rs 100 net after-tax cash flow (subscription revenue minus costs of providing service) per subscriber each year. Halfway has a cost of capital of 15%. Furthermore, assume that Halfway expects to add 100000 subscribers each year for the next 10 years and that the value added by each subscriber will grow from the current level at the inflation rate of 3% every year. The cost of adding a new subscriber is Rs 100 currently, assumed to be growing at the inflation rate.

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Based on the information given, find out the value of the firm and the value per existing subscriber. 12

(Note: Rs 1 million = Rs 10,00,000)

(b) Why are sector specific multiples used by analysts? 4

Answer to Qn. No. 3

(a) Value per subscriber = $100 \times \left[\frac{1-(1.15)^{-3}}{0.15}\right]$

$= 100 \times 2.2832 = \text{Rs. } 228.32$

Value of existing subscriber base = 1m X Rs 228.32

= Rs 228.32 million

Year	Value added per subscriber	Cost of acquiring subscriber	Number of subscribers added	PV at 15% Rs
1	Rs 235.17	Rs 103.00	1,00,000	11,493,234
2	Rs 242.23	Rs 106.09	1,00,000	10,293,940
3	Rs 249.49	Rs 109.27	1,00,000	9,219,789
4	Rs 256.98	Rs112.55	1,00,000	8,257,729
5	Rs 264.69	Rs 115.93	1,00,000	7,396,049
6	Rs 272.63	Rs 119.41	1,00,000	6,624,287
7	Rs 280.81	Rs 122.99	1,00,000	5,933,057
8	Rs 289.23	Rs 126.68	1,00,000	5,313,956
9	Rs 297.91	Rs 130.48	1,00,000	4,759,456
10	Rs 306.85	Rs 134.39	1,00,000	4,262,817
				73,554,309

The cumulative value added by new subscribers is Rs 73.55 million.

Value of firm = Value of existing subscribers base + value added by new customers

= Rs 228.32 m + 73.55 m = Rs 301.87 million.

Value per existing subscriber = Value of firm/number of subscribers

= Rs 301.87 million/1million

= Rs 301.87 per subscriber.

Working notes : 1. Value added per subscriber at end of year 1

= Rs 228.32 + 3% of Rs 228.32 = Rs 235.17 [and so on for later yrs]

2. PV at 15% to be worked out from present value tables.

(b) There are several reasons why analysts use sector specific multiples:

1. Sector specific multiples link firm value to operating details and output. For analysts who begin with these forecasts, – eg, predicted number of subscribers for an internet service provider, - are provided a much more intuitive way of estimating value.
2. Sector specific multiples can often be computed with no reference to accounting statements or measures. Consequently, they can be estimated for firms where accounting statements are non-existent, unreliable or just not comparable.
3. Though this is hardly admitted, sector specific multiples are sometimes employed in desperation because none of the other multiples can be estimated or used. For instance, an impetus for the use of sector specific multiples for new economy firms was that they often had negative earnings and little in terms of book value or revenues, in order to work out any projections.

Question No. 4. The following information is given for Glow-Health Ltd, a leading pharmaceutical company:

Year	After tax earnings (Rs in lakh)	Dividends (Rs in lakh)	Issued shares in lakh	Price per share In paise
2000	129.3	51.75	270	540
2001	138.6	54.30	270	615
2002	148.95	56.40	270	518
2003	201.60	77.40	360	689
2004	222.90	79.95	360	672

Year	All share index	Inflation rate
2000	4343	6%
2001	4950	5%
2002	4268	4%
2003	3915	3%
2004	3458	3%

Glow health's cost of equity is estimated to be 12%.

(a) Explain with numerical workings, the current dividend policy of Glow-Health Ltd and also discuss whether or not this appears to be successful. 8

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(b) Identify and consider additional information that might assist managers of Glow-Health in assessing whether the dividend policy has been successful. 5

(c) Evaluate whether or not the Company's share price at the end of year 2001 was what might have been expected from the Dividend Growth Model. Briefly discuss the validity of your findings. 3

Answer to Qn. No. 4

(a)

Year	Post tax (earnings per share (paise)	Growth %	Dividend per share (paise)	Growth %	Inflation%
2000	47.9	-	19.2	-	-
2001	51.3	7.1	20.1	4.7	5
2002	55.2	7.6	20.9	4	4
2003	56	1.4	21.5	2.9	3
2004	61.9	10.5	22.2	3.3	3
Overall compound - growth		6.6		3.7	

Year	All share index	Growth %	Share price	Growth %
2000	4343	-	540	-
2001	4950	14	615	13.9
2002	4268	-13.8	518	-15.8
2003	3915	-8.3	689	33
2004	3458	-11.7	672	-2.5
overall comp Growth		-5.5		5.6

The company is following a stable dividend policy with moderate growth, although the growth itself is not fixed.

Grow Health's share price has increased over the four year period by an annual compound rate of 5.6%, much better than the annual fall of 5.5% suffered by all-share index. This does not prove that the dividend policy has been successful. The share price might be influenced by many other factors, especially the

potential long-term cash flow expectations of the shareholders. Admittedly, comparison with the all-share index does not measure the performance of Glow Health relative to companies in its own industry/sector.

(b) Additional information might include:

1. Direct feedback from shareholders, especially institutional shareholders , stating whether or not they are happy with the current dividend policy.

2. Full details of the registered shareholders and sizes of holding. Glow Health Ltd might have a desired spread of shareholders, which could be influenced by the dividend policy adopted.

3. Knowledge of the impact of taxation of dividends on shareholders' attitude, and specially on their preferences between dividends and capital gains.

4. The impact of dividend payments on corporate liquidity position.

5. The signals provided by dividend payments about the future financial health of the company. For example, would the fact that the dividend growth is lagging behind the earnings growth be considered a positive or a negative signal?

4 (c).

$Ke = D_{2000}/P_{2000} + g = 19.2/540 + .053. = .089$

$P_{2001} = D_{2000} (1 + g) / (Ke - g) = 19.2 (1.053) / (.089 - .053) = 561$ paise

[where Ke = cost of equity

D = dividend per share = Rs 51.75 L /270 L shares = 19.2 p

P = Price of share

g = growth rate of dividend = r.b = EPS*/P x (EPS – DPS**)/EPS

= (47.9/540) x (47.9 – 19.2)/47.9

= 0.053

*EPS = Rs 129.3 L / 270 L shs = 47.9 p

**DPS = Rs 51.75 L / 270 L shs = 19.2 p]

The actual share price of 615 paise as at end of 2001 in the context of Dividend Growth Model (Gordon's) is obviously overvalued.

Question No. 5

(a) Laxmi Enterprise is to acquire a personal computer complete with multi-media kit and a printer. Its price is Rs 60,000. Laxmi Enterprise can borrow Rs 60,000 from Punjab National bank at 12% interest per annum to finance the purchase. The principal sum is to be repaid in 5 equal yearly instalments. Laxmi Enterprise can also have the computer on lease for 5 years and seeks your advice to know the maximum lease rent per year payable at the end of each year.

You collect the following additional information:

(i) Interest on bank loan is payable at the end of each year.

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(ii) The full cost of the computer will be written off over the effective life of computer on a straight line basis. This is allowed for tax purposes.

(iii) At the end of year 5, the computer may be sold for Rs 1500 through second-hand dealer who will charge 8% commission on the sale proceeds.

(iv) The company's effective tax rate is 30%

(v) The cost of capital is 11%

Suggest the maximum lease rental for Laxmi Enterprise. 12

(b) What are the possible causes of horizontal and vertical mergers? 4

Answer to Qn. No. 5

(a) Workings:

(i) Annual loan repayment = Rs 60,000 ÷ 5 = Rs 12,000

(ii) Residual sale value at end of year 5 Rs 1,500

(-) Commission at 8% 120

1,380

(-) Tax at 30% 414

Net Cash flow Rs 966

(iii) Net cash outflow under loan option :

Year	1	2	3	4	5	Total
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Principal repayment	12,000	12,000	12,000	12,000	12,000	60,000
Payment of Interest	7,200	5,760	4,320	2,880	1,440	21,600
	19,200	17,760	16,320	14,880	13,440	81,600
(-)tax savings @30%						
(I) on Dep	3,600	3,600	3,600	3,600	3,600	18,000
(ii) on Interest	2,160	1,728	1,296	864	432	6,480
Net outflow	13,440	12,432	11,424	10,416	9,408	57,120
Using discount factor at 11%	0.901	0.812	0.731	0.659	0.593	
PV of cash Outflow	12,109	10,095	8,351	6,864	5,579	42,998
(-) PV of Post Tax inflow at the end of year 5 (966 x .503)						573

P.V of Net Cash outflow in five years 42,425

PV of post-tax annual lease rentals in 5 years should not exceed Rs 42,425.

PV of post-tax lease rental for one year should not exceed Rs 42,425/3.696 = Rs 11,480.
PV of pre-tax lease rental per year = Rs 11,480 / (1-t) = Rs 11,480 / (1-0.3) = Rs 16,400.
Maximum pre-tax annual rental should be Rs 16,400.

(b) Horizontal Mergers - Possible causes:

- Economies of scale
- Increased monopoly and bargaining power
- Product and service complementary
- Management opportunity
- Acquisition of new products and brands.

Vertical Mergers - Possible causes

- Value chain management
- Technological and other economies
- Tax benefits
- Better control on the supply side.

Question No. 6. What are the SEBI guidelines for valuation of unlisted shares? 16

Answer to Qn. No. 6

SEBI guidelines for valuation of unlisted shares are as under:

With a view to bringing about uniformity in calculation of net asset values (NAVs) of mutual funds schemes, SEBI has, vide its circular MFD/CIR/03/526/2002 dated May 09, 2002, issued guidelines for valuation of unlisted equity shares in consultation with the Association of Mutual Funds in India (AMFI). The guidelines also prescribe exercise of due diligence while making such investments in and review of the MF's performance so as to protect the interests of investors.

Methodology for valuation:

Unlisted equity shares of a company shall be valued 'in good faith' on the basis of the valuation principles laid down below:

a. Based on the latest available audited balance sheet, net worth per share shall be taken as the lower of (i) and (ii) below:

(i) Net worth per share (ignoring outstanding warrants and options)
= Share capital plus free reserves (excluding revaluation reserves) minus (miscellaneous expenditure not written off or deferred revenue expenditure, intangible assets and accumulated losses) divided by (Number of Paid-up shares.)

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(ii) Net worth per share (taking into account outstanding warrants and options) = Share capital plus consideration on exercise of warrants and options ceived / receivable by the company plus free reserves (excluding revaluation reserves) minus (miscellaneous expenditure not written off or deferred revenue expenditure, intangible assets and accumulated losses) divided by

(Number of Paid-up shares plus number of shares that would be obtained on conversion /exercise of outstanding warrants and options.)

b. Average capitalization rate (P/E ratio) for the industry based upon either BSE data or NSE data (which should be followed consistently and changes, if any, noted with proper justification thereof) shall be taken and discounted by 75% ie only 25% of the industry average P/E ratio shall be taken as the capitalization rate. Earnings per share of the latest audited annual accounts will be considered for this purpose.

C The value as per the net worth value per share and the capital earning value calculated as above shall be averaged and further discounted by 15% for illiquidity so as to arrive at the fair value per share. The above methodology for valuation is subject to the following conditions:

(i) All calculations as aforesaid shall be based on audited accounts

(ii) In case where the latest balance sheet of the company is not available within nine months from the close of the year, unless the accounting year is changed, the shares of such companies shall be valued at zero.

(iii) If the net worth of the company is negative, the share would be marked down to zero.

(iv) In case the EPS is negative, EPS value for that year shall be taken as zero for arriving at capitalized earning.

(v) In case an individual security accounts for more than 5% of the total assets of the scheme, an independent valuer shall be appointed for the valuation of the said security. To determine if a security accounts for more than 5% of the total assets of the scheme, it should be valued in accordance with the procedure as mentioned above on the date of valuation.

Question No. 7 (a) What is index futures and what are its salient features? 8

(b) The settlement price of sensex futures contract on a particular day was Rs 4,600. The initial margin was set at Rs 10,000, while the maintenance margin was fixed at Rs 8,000. The multiple of each contract is 50.

The settlement prices on the following four days were as follows:

Day	Settlement Price Rs
1	4700
2	4500
3	4650
4	4750
5	4700

Calculate the mark to market cash flows and the daily closing balances in the accounts of

(a) an investor who has gone long, and
(b) an investor who has gone short at 4600.
Calculate net profit(loss) on each of the contracts. 8

Answer to Qn, No. 7

(a) An index futures contract is basically an obligation to deliver a settlement, an amount equal to 'X' times the difference between the stock index value on the expiration date of the contract and the price at which the contract was originally struck. Stock index futures are based on complex cash instruments.

The salient features of the index futures contracts are as follows:

1. The most important feature of the index futures contracts is that they are cash settled; there is usually no delivery of the underlying stocks or stock certificates.
2. An investor can either buy or sell an index futures contract. When an investor goes long in the index futures contract, he will receive a cash settlement on the expiration date if the closing price exceeds the contract price. On the other hand, if the closing price is less than the contract price, the investor will be required to pay the difference.
3. Since index futures contracts are listed and traded on futures exchanges, the investor can offset his position on any day prior to the expiration day.
4. The index futures contract carries the margin requirements which are applicable to both the buyer and the seller.

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(b) (i) Status of the investor who has gone long on the contract

Margin Account

Day	Settlement Price	Op Balance	Mark to Market	Margin call	Cl Balance
1	4700	10,000	5000	–	15,000
2	4500	15,000	(-) 10,000	5,000	10,000
3	4650	10,000	7,500	–	17,500
4	4750	17,500	5,000	–	22,500
5	4700	22,500	(-)2,500	–	20,000

Net Profit (loss) on the contract = +5000 – 10,000 + 7500 + 5000 – 2500 = Rs 5000

(ii)Status of the investor who has gone short on the contract

Margin Account

Day	Settlement Price	Op Balance	Mark to Market	Margin call	Cl balance
1	4700	10,000	(-)5000	5000	10,000
2	4500	10,000	10,000	–	20,000
3	4650	20,000	(-) 7,500	–	12,500
4	4750	12,500	(-) 5000	2500	10,000
5	4700	10,000	2,500	–	12,500

Net Profit (Loss) on the contract.
= - 5,000 + 10,000 – 7,500 – 5,000 + 2,500 = (Rs 5,000) loss

Question No. 8

The Finance Director of Green Field Ltd. is investing a potential Rs 250 lakh investment. The investment would be in a bio-tech project away from existing mainstream activities of computer hardware manufacture. Rs 60 lakh of investment would be financed by internal funds, Rs 90 lakh by long term loans and Rs 100 lakh by right issue. The investment is expected to generate pre-tax net cash flows of approximately Rs 50 lakh a year. for a period of 10 years. The residual value at the end of year 10 is forecast to be Rs 50 lakh after tax. Government loan of Rs 40 lakh out of total 90 lakh is also available. This will cost 2% below the company's normal cost of long term debt finance which is 8%.

Green Field Ltd's financial gearing is 60% equity and 40% debt by market value and its equity beta is 0.85. The average equity beta in computer hardware industry is 1.2, and average gearing 50% debt and 50% equity by market value.

The risk free rate is 5.5% per annum and the market return is12% per annum. Issue costs are estimated to be 1% for debt financing (excluding subsidized loan) and 4% for equity financing.

The corporate tax is 30%.
(Issue costs are not tax deductible).

(a) Estimate the adjusted present value of the proposed investment. **12**

(b) Explain the circumstances under which Adjusted Present Value (APV) might be a better method of evaluating a capital investment than Net Present Value (NPV). **4**

Answer to Qn. No. 8

(a) Assuming the risk of companies in the computer hardware industry is similar to that of Greenfield Ltd, the beta of computer hardware industry will be used as proxy to estimate the discount rate for the base case NPV.

Asset beta = Equity beta x $E/\{E + D(1-t)\}$ = 1.2 x 50 /{50 +50(1 - 0.30)} = 0.706

Using the capital asset pricing model:

Ke ungeared = 5.5 + (12 – 5.5) 0.706 = 10.09 => 10%.

Annual after tax cash flows = Rs 50 lakh x (1 – 0.3) = Rs 35,00,000

From the annuity table with a 10% discount rate:

	Rs
PV of annual cash flows, Rs 35,00,000 x 6.145	= 2,15,07,500
PV of residual value, Rs 50,00,000 x 0.386	= 19,30,000
	2,34,37,500
(Less) initial investment	(2,50,00,000)
Net Present Value	Rs (15,62,500)

Subsidy:

The company saves 2% per year on Rs 40,00,000 or Rs 80,000.

The net of tax saving is Rs 80,000 (1-0.3) = Rs 56,000.

Since it is a government subsidy, it is assumed to be risk-free. It should be

discounted at 5.5% per year. Rs 56,000 x 7.541 = Rs 4,22,296.

Tax relief:

Interest payable per year : on Rs 50,00,000 @ 8% and on Rs 40,00,000 @ 6% = Rs 6,40,000. Tax relief thereon @ 30% = Rs 1,92,000 p.a. The PV of

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these reliefs (assumed to be tax-free) at the discount rate of 5.5% is

Rs 1,92,000 x 7.541

= Rs 14,47,872.

Issue costs: Debts Rs 50 lakh x 1% + Equity Rs 100 lakh x 4%

= Rs 4.50,000.

The adjusted net present value is estimated to be:

Rs 15.62,500 + Rs 4.22,296 + 14,47,872 – 4,50,000 = - Rs 1,42,332.

Since it is negative, the Project is not financially viable.

(b) Adjusted Present Value (APV), as compared with Net Present Value, may be better as a technique to be used when :

1. there is a significant change in the company's existing capital structure as a result of new investment;
2. the investment involves complex tax payments and tax allowances, and/or has periods when taxation is not paid;
3. subsidized loans, grants or issue costs exist (as when a project is being set up in a backward area or because the government is keen that funds should flow to this area);
4. financing side effects exist (e.g the subsidized loan) which require discounting at a rate different from that applied to the mainstream project.

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