CPA IRELAND | CERTIFIED PUBLIC ACCOUNTANTS

MANAGERIAL FINANCE

PROFESSIONAL 1 EXAMINATION - APRIL 2018

NOTES:
Section A – Answer Question 1 and Question 2 and **either** Part A **or** Part B of Question 3.
Section B – Answer Question 4 and **either** Part A **or** Part B of Question 5.
Should you provide answers to both Parts A and B in Question 3 and/or Question 5, you must draw a clearly distinguishable line through the answer Part(s) not to be marked. Otherwise, only the first answer(s) to hand for each of these questions will be marked.

MANAGERIAL FINANCE TABLES ARE PROVIDED

TIME ALLOWED:
3 hours, plus 10 minutes to read the paper.

INSTRUCTIONS:
During the reading time you may write notes on the examination paper, but you may not commence writing in your answer book. **Please read each Question carefully.**

Marks for each question are shown. The pass mark required is 50% in total over the whole paper.

Start your answer to each question on a new page.

You are reminded to pay particular attention to your communication skills, and care must be taken regarding the format and literacy of your solutions. The marking system will take into account the content of your answers and the extent to which answers are supported with relevant legislation, case law or examples, where appropriate.

List on the cover of each answer booklet, in the space provided, the number of each question attempted.

NB: PLEASE ENSURE TO ENCLOSE YOUR ANSWER SHEET TO QUESTION 4 IN THE ENVELOPE PROVIDED.

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

MANAGERIAL FINANCE

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Time allowed 3 hours, plus 10 minutes to read the paper.

SECTION A
(Answer Questions 1 and 2 and either Part A or Part B of Question 3)

1. CS Limited operates a chain of cafés that are located in third level colleges in Ireland. The managing director is evaluating an investment proposal regarding which type of coffee machine CS Limited will introduce into the cafés at the end of the expected useful life of the current coffee machine. The useful life of the current machine will expire within the next year. The managing director commissioned a report that would assist in deciding which one of the three new machines should be introduced into the café in Munster University on a pilot basis. The cost of this report is €65,000 which will be paid immediately. The managing director is of the view that whichever machine will be purchased the investment proposal would require a minimum payback period of two years and a positive NPV after three years. The company's cost of capital is 5%.

There are three different types of machine under consideration – CM1, or CM2 or CM3. Each machine has an expected three-year useful life. Other information compiled to date includes projected product unit costs and projected contribution for each of the three machines.

Machine CM1
The CM1 machine will cost €240,000 with an estimated scrap value of €30,000.

Unit Costs for coffee drink with this machine –	Per Product Unit
Direct Materials	€1.30
Direct Labour	€0.60
Prime Cost	€1.90
Machine Maintenance Cost (variable cost)	€0.30
Contribution	€0.80
Year 1 Expected Revenue (based on forecast numbers)	€604,800
Year 1 Expected Contribution	€161,280
Year 1 Projected Maintenance Cost (variable cost)	€60,480

Machine CM2
The CM2 machine will cost €190,000 with an estimated scrap value of €40,000.

Unit Costs for coffee drink with this machine –	Per Product Unit
Direct Materials	€1.00
Direct Labour	€0.60
Prime Cost	€1.60
Machine Maintenance Cost (variable cost)	€0.20
Contribution	€0.70
Year 1 Expected Revenue (based on forecast numbers)	€441,000
Year 1 Expected Contribution	€123,480
Year 1 Projected Maintenance Cost (variable cost)	€35,280

Machine CM3
The CM3 machine will cost €140,000 with an estimated scrap value of €50,000.

Unit Costs for coffee drink with this machine –	Per Product Unit
Direct Materials	€1.00
Direct Labour	€0.60
Prime Cost	€1.60
Machine Maintenance Cost (variable cost)	€0.20
Contribution	€0.20

Year 1 Expected Revenue (based on forecast numbers)	€252,000
Year 1 Expected Contribution	€25,200
Year 1 Projected Maintenance Cost (variable cost)	€25,200

Other Information:
For each machine the maintenance costs are expected to increase by 5% each year for the next two years. Other variable costs (direct materials and direct labour) are expected to stay constant. Customer numbers are expected to increase by 10% each year over the next two years. There is no projected change in the unit sales price. At the end of Year 2 for both Machine CM1 and Machine CM2, a royalty payment (once off fee) of €50,000 has to be paid. There is no royalty payment for the CM3 machine. Marketing costs of €30,000 must be paid up front for each machine.

Revenue Projections (Based on market research)

No of Customers in Munster University using café:	Opening Hours 08.00 – 20.00
No of Patrons (Daily) 1,400	Monday – Saturday

Percentage of customers that will buy coffee if CM1 is purchased 40%
Percentage of customers that will buy coffee if CM2 is purchased 35%
Percentage of customers that will buy coffee if CM3 is purchased 25%

The working week is from Monday to Saturday. Every day on average there are 1,400 customers. The café operates on the basis of 360 days per year. The existing CS machine that is currently being used was purchased at a cost of €300,000 having a four-year life with zero scrap value. It still has €75,000 depreciation remaining as it was bought three years ago. Due to the location of Munster University in a designated area, tax will not be payable on any profits arising from the introduction of any of the new coffee machines.

REQUIREMENT:
Prepare extracts from a Report to the Managing Director with the information presented in the following order:

(a) A Table showing the results of your calculations and initial recommendations based on (1) the Payback and (2) NPV methods.

Note: *Include any detailed workings on separate pages as an appendix to your report. Rounding is required to 2 decimal places.*

(15 marks)

(b) A consultant has suggested that the company might use Accounting Rate of Return (ARR) and Internal Rate of Return (IRR) as the two Investment Appraisal methods instead of Payback and NPV. Comment critically upon this suggestion of using ARR and IRR as the two preferred methods instead of Payback and NPV.

Note: *You are not required to show calculations using these two alternative methods of ARR and IRR to answer this part of the question.*

(5 marks)

(c) This consultant has also suggested that in evaluating the Investment proposal for CS Limited non-financial related factors or qualitative factors need to be used in addition to the financial data. Examine the role of qualitative data and other considerations that should/could be taken into consideration in the decision making process for CS Limited.

(5 marks)

[Total: 25 Marks]

2. D Limited is a family run business that manufactures carpet-cleaning machines. The D1 machine requires the following components in their standard cost specifications:

Standard Costs

Direct Materials	**Units**	**Unit Cost**	**Growth Cost**
Redform	15	€30 each	€450
Blueform	8	€37.50 each	€300
Direct Labour	60 Hours	€5.25 per hour	€315

Budgeted annual fixed overheads are €252,000 for a budgeted output of 2,400 machines per year. This annual fixed overhead budget is divided into calendar months with equal production amounts each month.

Actual Performance for March:

For the month of March, the following information has been made available:

Sales Revenue was €252,000. Sales of Machine D1 were 180 units at the expected standard sales price. Cost of sales was €218,220 and comprised of direct materials (€140,760) and direct labour (€56,160), while factory overhead (fixed) amounted to €21,300.

Usage of the materials had been 2,850 units of Redform and 1,470 units of Blueform.

Redform cost €85,500 at a price of €28.50 each during March, while 1,000 Blueform units were purchased for €40,500. The actual number of direct labour hours worked in the month of March was 11,700.

Establishment expenses are €5,575, while Marketing Expenses are €8,645.

You have been requested to compare the expected performance with the actual performance.

REQUIREMENT:

(a) Prepare an Operating Statement for March reconciling the actual and budgeted profit for the D1 machine showing the amounts and nature of the variances.

(12 marks)

(b) The managing director of D Limited recently planned to attend a seminar on 'Costing Approaches' at which the topic of Activity Based Costing (ABC) was on the agenda. However, he asked you to attend instead as an urgent matter had arisen requiring his attention. He has now requested that you advise him of the salient points behind ABC, assessing the benefits and pitfalls of this costing system when compared with more traditional approaches. You should assume that the managing director has no understanding of ABC.

(8 marks)

[Total: 20 Marks]

3. Answer either Part A OR Part B.

Performance Measurement Systems and Budgeting

Peter Clarke and Andrew Toal have provided some insightful comments on the area of performance measurement systems in their Article entitled: 'Issues in Performance Measurement' from which the following is an extract:

Recent discussion on the area of performance measurement has indicated that a broad set of indicators should be employed to assess performance and these performance metrics should be linked in a cause and effect chain from organisational mission through objectives and strategy to action. Any such framework for performance measurement should attempt to remedy the perceived failings of traditional measurement systems.

Part A
REQUIREMENT:
Evaluate these comments by reference to Kaplan and Norton's 'Balanced Scorecard Framework'.

[Total: 15 Marks]

OR

Part B
REQUIREMENT:
Many commentators have argued that the budget process does more harm than good in modern organisations. Discuss the main criticisms of traditional budgeting and the alternative approaches advocated by the proponents of the 'Beyond Budgeting' movement.

[Total: 15 Marks]

SECTION B
Answer Question 4 and either Part A OR Part B of Question 5.

4. **The following multiple-choice question contains eight sections, each of which is followed by a choice of answers. Only one of the answers offered is correct. Each question carries 2.5 marks. Provide your answer to each section on the answer sheet provided.**

INFORMATION RELEVANT TO PARTS 1, 2, 3 AND 4 ONLY

The following results for the current year are for the A Division of Company J:

	€
Sales	400,000
Variable costs	180,000
Contribution margin	220,000
Fixed expenses	160,000
Divisional income	60,000

Average operating assets are €500,000. The firm's minimum required rate of return is 10 %; the weighted average cost of capital is 8 %; and the tax rate is 30%.

REQUIREMENT:

1. The Asset Turnover for the division is:

   (a) 36%
   (b) 80%
   (c) 44%
   (d) None of the above.

2. The Return on Investment (ROI) for the division is:

   (a) 44%
   (b) 14%
   (c) 12%
   (d) None of the above.

3. IThe Economic Value Added (EVA) for the division:

   (a) €42,000
   (b) €20,000
   (c) €40,000
   (d) None of the above.

4. The Profit Margin for the division is:

   (a) 10.5%
   (b) 15%
   (c) 55%
   (d) None of the above.

5. In relation to Portfolio Theory (PT) and Capital Asset Pricing Model (CAPM), which, (if any) of the following statements are correct?

(i) Deploying both PT and CAPM will facilitate diversifying both systematic and unsystematic risk.
(ii) In CAPM where there is a correlation co-efficient of -1 this would minimise unsystematic risk.
(iii) Portfolio Theory requires Beta to represent the sensitivity of the option selected to the market rate.

(a) (i) and (ii) only
(b) (i) and (iii) only
(c) (ii) and (iii) only
(d) None of the combinations listed above.

6. With regard to the term 'Covariance', which, (if any) of the following statements are correct?

(i) Covariance measures the average distance between two bond portfolios.
(ii) Covariance is used in the Capital Asset Pricing Model.
(iii) Covariance measures the degree to which two variables move together.

(a) (i) and (ii) only
(b) (i) and (iii) only
(c) (ii) and (iii) only
(d) None of the combinations listed above.

INFORMATION RELEVANT TO PARTS 7 AND 8 ONLY

G Industries began operations on 1 January. The company sells a single product for €75 per unit. During the year, 9,000 units were produced and 8,600 units were sold. There was no work-in-progress inventory at 31 December.

The company uses an actual cost system for product costing, and actual costs for the year were as follows:

Item	**Fixed Costs**	**Variable Costs**
Direct Materials		€22.00 per unit produced
Direct Labour		€16.00 per unit produced
Manufacturing O/Head	€90,000	€5.00 per unit produced
Selling and Administrative Expenses	€50,000	€3.00 per unit sold

7. The cost per unit, using Absorption Costing is:

(a) €43
(b) €53
(c) €38
(d) None of the above.

8. The Net Income under Variable Costing is:

(a) €113,400
(b) €109,400
(c) €159,400
(d) None of the above. **[Total: 20 Marks]**

5.

Answer either Part (A) OR Part (B)

Part (A)
Interest rates are forecast to rise and key shareholders in the company that you work for are requesting increased dividend payments. Your financial director has requested that you review your company's cost of capital as he is considering recommending a restructuring of the capital structure to the Board.

The following is extracted from an e-mail that he sent you containing relevant information:

Current Capital Structure

		Nominal Value	Market Value
Ordinary Shares	€2.5 million	€1	€3.95
Retained Earnings	€6.4 million		
6.5% Preference Shares	€500,000	€1	€1.03
Bank Loans (Interest cost 8.8%)	€3.8 million		
8% Irredeemable Debentures	€6 million	€100	€97

Additional Information:
The company pays dividends and expects to pay a dividend of €0.20 this year.
Dividends are expected to grow at 2.5% per annum.
Expected market returns are 12%.
The company uses treasury bills as a comparator for the risk free rate that is 2.6%.
The company's beta is 1.12.
The current Corporation Tax Rate is 12.5%.

REQUIREMENT:

(a) Analyse your company's cost of capital and present summarised in a table:

(i) The Cost of Debt. (6 marks)

(ii) The Cost of Equity using the following:
(a) The dividend valuation model. (2 marks)
(b) The Capital Asset Pricing Model (CAPM). (2 marks)

(iii) The Weighted Average Cost of Capital, based on market values using both the Dividend Valuation Model and the Capital Asset Pricing Model.
(10 marks)

[Total: 20 Marks]

OR

Part (B)
With the onset of Brexit and as organisations operate in increasingly internationally competitive environments of global trade with supply chains becoming more integrated, there is a need for organisations to reduce their exposure to foreign exchange risks. Furthermore, organisations must deploy strategies that will identify and manage the relevant risks or possibly adopt an offensive strategy in order to exploit opportunities.

REQUIREMENT:
Evaluate these foreign exchange risk management strategies that organisations can deploy.

[Total: 20 Marks]

END OF PAPER

SUGGESTED SOLUTIONS

THE INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS IN IRELAND

MANAGERIAL FINANCE

PROFESSIONAL 1 EXAMINATION – APRIL 2018

SOLUTION 1

REPORT

TO: Managing Director of CS Limited
FROM: CPA Financial Consultant

RE: Proposed Coffee Machine Investment

This report presents the results of the investment appraisal of the purchase of one of three possible Coffee Machines using the NPV and Payback methods, in addition to providing answers to the questions that were posed by the consultant.

Detailed workings may be found in the appendices to this report.

CS Limited – Possible Purchase of Coffee Machine

(a) Investment Appraisal

Method	**Result – CM1 Machine**	**Result – CM2 Machine**	**Result – CM3 Machine**	**Initial Recommendation**
NPV (in €000s)	€182,898	€131,869	(€57,330)	Accept CM1 (highest NPV)
Payback	1.88 Years	2.09 Years	3 Years +	Accept CM1 as inside payback zone and less than 2 years

Recommendation: As CS Limited can purchase only one machine the CM1 machine is recommended as this has the highest positive NPV if NPV is the sole consideration. The CM3 machine is rejected as this machine has a negative NPV.

Appendix 1

Discounted Cash Flows

CM 1

Year	**0**	**1**	**2**	**3**	**4**	**Total**
Contribution (see Appendix 2)		161,280	174,082	187,648		523,009
Scrappage proceeds					30,000	30,000
Cash inflow	0	161,280	174,082	187,648	30,000	553,009
Purchase cost	240,000					240,000
Marketing	30,000					30,000
Royalty Payment			50,000			
Cash outflow	270,000	0	50,000	0	0	320,000
Net Cash Flow	**(270,000)**	**161,280**	**124,082**	**187,648**	**30,000**	**233,009**
PV Factor (5%)	1.000	0.952	0.907	0.864	0.823	
Discounted Cash flow	**(270,000)**	**153,539**	**112,542**	**162,128**	**24,690**	**182,898**
Cumulative Cash flow	(270,000)	(108,720)	15,362	203,009	233,009	
Payback	Less than two years					
DCF Positive						

CM 2

Year	**0**	**1**	**2**	**3**	**4**	**Total**
Contribution (see Appendix 2)		123,480	133,888	145,035		402,403
Scrappage proceeds					40,000	40,000
Cash inflow	0	123,480	133,888	145,035	40,000	442,403
Purchase cost	190,000					190,000
Marketing	30,000					30,000
Royalty Payment			50,000			
Cash outflow	220,000	0	50,000	0	0	270,000
Net Cash Flow	**(220,000)**	**123,480**	**83,888**	**145,035**	**40,000**	**172,403**
PV Factor (5%)	1.000	0.952	0.907	0.864	0.823	
Discounted Cash flow	**(220,000)**	**117,553**	**76,086**	**125,310**	**32,920**	**131,869**
Cumulative Cash flow	(220,000)	(96,520)	(12,632)	132,403	172,403	
Payback	Greater than two years					
DCF Positive						

CM 3

Year	**0**	**1**	**2**	**3**	**4**	**Total**
Contribution (see Appendix 2)		25,200	26,334	27,367		78,901
Scrappage proceeds					50,000	50,000
Cash inflow	0	25,200	26,334	27,367	50,000	128,901
Purchase cost	140,000					140,000
Marketing	30,000					30,000
Royalty Payment						
Cash outflow	170,000	0	0	0	0	170,000
Net Cash Flow	**(170,000)**	**25,200**	**26,334**	**27,367**	**50,000**	**(41,099)**
PV Factor (5%)	1.000	0.952	0.907	0.864	0.823	
Discounted Cash flow	**(170,000)**	**23,990**	**23,885**	**23,645**	**41,150**	**(57,330)**
Cumulative Cash flow	(170,000)	(144,800)	(118,466)	(91,099)	(41,099)	
Payback	No payback					
DCF Negative						

Appendix 2

Contribution Calculations Years 2 and 3

Year		**CM1**	**CM2**	**CM3**
1	Revenue (given)	€604,800	€441,000	€252,000
1	**Contribution (given)**	**€161,280**	**€123,480**	**€25,200**
1	Contribution Sales Unit (given)	€0.8	€0.7	€0.2
1	Unit Sales (calculated)	201,600	176,400	126,000
1	Unit Sales Price (given)	€3	€3	€2
1	Maintenance Costs per Sales Unit (given)	€0.3	€0.2	€0.2
2	Purchasing Customers (Yr1 plus 10%)	221,760	194,040	138,600
2	Revenue (calculated)	€665,280	€485,100	€277,200
2	Prime Costs Sales Unit (given)	€1.9	€1.6	€1.6
2	Total Prime Costs (calculated)	€421,344	€310,464	€221,760
2	Maintenance Cost per Sales Unit (Yr1 plus 5%)	€0.3150	€0.2100	€0.2100
2	Maintenance Costs (calculated)	€69,854	€40,748	€29,106
2	Total Variable Costs	€491,198	€351,212	€250,866
2	**Total Contribution**	**€174,082**	**€133,888**	**€26,334**
3	Purchasing Customers (Yr2 plus 10%)	243,936	213,444	152,460
3	Revenue (calculated)	€731,808	€533,610	€304,920
3	Prime Costs Sales Unit (given)	€1.9	€1.6	€1.6
3	Total Prime Costs (calculated)	€463,478	€341,510	€243,936
3	Maintenance Cost per Sales Unit (Yr2 plus 5%)	€0.3308	€0.2205	€0.2205
3	Maintenance Costs (calculated)	€80,682	€47,064	€33,617
3	Total Variable Costs	€544,160	€388,575	€277,553
3	**Total Contribution**	**€187,648**	**€145,035**	**€27,367**

15 Marks for Investment Appraisal – Distributed as	Marks
Calculation of Total Contribution for Year 2 for each of 3 machines	3 marks (1 mark for each machine)
Calculation of Total Contribution for Year 3 for each of 3 machines	3 marks (1 mark for each machine)
Calculation of NPV	6 marks (2 marks for each machine)
Calculation of Payback	3 marks (1 mark for each machine)
TOTAL	15

(b) ARR and IRR Vs Payback and NPV

- ARR uses profits and not cash flow . Depreciation as an expense will need to be included in the calculation of Profit.
- ARR Formula is Average Annual Profit/Initial Investment.
- ARR advantage is that method provides a % return instead of an absolute amount that NPV method provides.
- ARR Disadvantage is that calculation of profit can be affected by creative accounting (e.g. depreciation expense). This is somewhat offest by the need to consider average annual profits over the project life.
- IRR will aso provide a % rate . IRR is the calculated rate where NPV is equal to zero. The decision rule will be if this % rate is greater than cost of capital worthwhile for CS Limited to pursue the investment.
- Advntage of IRR method is that it can assess the project risk – if the IRR is marginally ahead of cost of capital then the chance of achieving that project return may be under threat.
- Calculation method will use trial and error or interoplation . We use a discount rate that gives a positive NPV and a discount rate that gives a negative NPV. The IRR will be the rate between the positive yielding NPV rate (IRR1 in our formula below) and the negative yielding NPV rate (IRR2 in our formula below).
- Using Machine CM1 as an example start with our cost of capital of 5% - this is our positive yielding NPV 5% is IRR1.
- The calculated rate being the IRR will be in excess of 5% - exactly how much in excess is determined by the formula : Formula is : 5% +X where X = positive NPV (IRR2 – IRR1) / NPV1 – (-NPV2).
- Disadvantage of IRR method it that it is cumbersome, and difficult to calculate – whereas NPV is easier to use with a simple decision rule of whetre project NPV greater than zero accep the project.

5 Marks for part (b) – Distributed as	**Marks**
Explanation of ARR & related discussion	2
Explanation of IRR & related discussion	2
Inter methods comparison discussion	1
TOTAL	**5**

(c) Qualitative data and other non financial considerations

- Versatility of the machines – while CM1 has positive NPV & short pay back period are one of the other machines more versatile.
- The CM1 machine while meeting the criteria represents the largest cash outflow of the 3 machines – realism of the projections (cash outflows and inflows over the next three years).
- The track record of the supplier irrespective of whichever machine selected – have CS Limited purchased any machine from this supplier beforehand.
- Reference sites where they can seek information on the performance of the machines.
- Possible test period – can they arrange a trial of CM1 machine , especially as CS Limited are introducing it on a pilot basis and presumably have a chain of cafés that will be interested in the selected machine.
- Leasing or other options to reduce the outlay – have CS Limited investigated these options.
- Extra training for staff – will this be required

5 Marks for part (c) – Distributed as	**Marks**
Qualitative factors	1 mark for each
TOTAL	**5**

Total Marks for Question 1 **25**

SOLUTION 2

(a)

Item			Fav	Adv	
Sales	180 Units @€1,400 each				**€252,000**
Cost of Sales (Std)	180 Units @ €1,170 each	(See Standard Product Cost Tab)			**€210,600**
Std Gross Profit					**€41,400**
Material Usage - Redform	((180 x 15)- 2,850) x €30	Std Qty – Act Qty x Std Price		**€4,500**	
Material Usage - Blueform	((180 x 80 – 1,470) x €37.5			**€1,125**	
Material Price - Redform	(€30- €28.50) x 2,850	Std Price – Act Price x Act Qty	**€4,275**		
Material Price -Blueform	(€37.50 - 40.50) x 1470			**€4,410**	
Direct Wage Rate	((€5.25) - 56,160/11700) x 11,700	Std Rate – Act Rate x Act Hrs	**€5,265**		
Labour Efficiency	(180 x €60) - (11700 x €5.25)	Std Hrs – Act Hrs x Std Rate		**€4,725**	
Fixed O/ Head Expenditure	(€252,000/12) - €21,300	Budgeted – Actual		**€300**	
Fixed O/ Head Volume	(180-2,400/12) x €252,000/2,400)	Actual – Budgeted x Fixed OAR		**€2,100**	
Total			€9,540	€17,160	€7,620
Actual Gross Profit					€33,780
Administration Expenses		5,575 No Change			
Selling & Distribution Exps		8,645 No Change			€14,220
Net Profit					**€19,560**

Standard Product Cost

	Units	**Std Price €**	**€**
Dir Materials			
Redform	15	30	450
Blueform	8	37.5	300
Dir Labour	60	5.25	315
Production O/Head €252,000/2400			105
			€1,170

Marking Scheme

12 Marks for Operating Statement Reconciliation – Distributed as	**Marks**
Calculation of Material Usage Redform Variance	1
Calculation of Material Usage Blueform Variance	1
Calculation of Material Price Redform Variance	1
Calculation of Material Price Blueform Variance	1
Calculation of Direct Wage Rate Variance	1
Calculation of Labour Efficiency Variance	1
Calculation of Fixed O/Head Expenditure Variance	1
Calculation of Fixed O/Head Volume Variance	1
Overall Reconciliation technique and presentation/layout of same	4
TOTAL	**12**

(b) Difficulty with cost allocation is indirect costs or overheads and assigning these to products.

Product cost comprised of direct materials, direct labour (can be traced to products) and production overhead.

Example of production overhead – factory supervisor and tracing this cost to the product e.g. widget being made.

Traditional costing systems – known as absorption costing systems – allocate overhead to departments/divisions/ as cost objects indirectly through some basis of allocation (traditionally labour hours or machine hours or % of direct labour cost) as surrogate for the appropriation base – hence absorbed into the product. Problem here is no cause and effect relationship – traditional systems were 'assembly line' based and labour or machine were somewhat acceptable as allocation base.

Current organisations – more dynamic – manufacturing more automated – TQM WCM – labour and machine not intensive costs as beforehand, emphasis on quality – hence no of inspections more representative of quality cost for zero defects from traditional perspective.

Modern organisations – greater variety and complexity of cost landscape – Marketing, ICT, HR, support costs becoming more significant and need to be factored in together with need for cause and effect hence focus on activities and different viewpoint of indirect cost allocation.

Activity Based Costing – identify activities, group activities into overhead cost pools, ascertain appropriate cost driver that is surrogate/representative of that cost (rather than merely labour or machine hours), cost driver represents a measure that exerts the major influence on the cost of a particular activity; ABC can use non-volume based drivers – e.g. no of purchase orders for ordering activity, and assign activity costs to cost objects/products on the basis of cost driver usage.

Focus is on activities and an increased no of cost centres (than traditional absorption costing of departments/divisions) together with appropriate identifier/driver that is representative of cost of that activity e.g. Activity is setting up machines, Driver is No of Setups. Overhead more representative of complexity of product framework for modern organisations. Ultimately, through ABC products should be allocated a fair amount of overhead that is representative of composition of that product and the associated activities.

Traditional costing systems/absorption costing report less accurate costs because they use cost drivers (viz. labour or machine hours) where no cause and effect relationship exists to assign support costs (Marketing, HR, ICT, inspecting etc.) to cost objects/products.

Pitfalls – Getting Buy in from Staff for involvement in ABC process – may be seen as Time & Motion study & questioning how staff perform activities.

Identifying appropriate activities – what number is representative of the organisation.

ABC to be used must represent appropriate product landscape – non-volume based overheads, diverse range of products. Can also be used by service organisations but benefits (as above) must outweigh costs of implementing ABC

Marking Scheme

8 Marks for ABC – Benefits and Pitfalls vis a vis traditional systems – Distributed as	**Marks**
Explanation of key tenets /Grasp of ABC	1
Explanation of key differences when compared to traditional – volume based – no cause & effect relationship	1
Explanation of benefits of ABC	2
Explanation of Pitfalls/Drawbacks/Difficulties	2
Analytical & Comparative Approach used for contrasting ABC with traditional for benefits & pitfalls	2
TOTAL	**8**

Total Marks for Question 2 **20**

SOLUTION 3

Part A

Traditional Measurement systems – failings – oriented towards historic information – past events – financial measures only - non financial not considered (e.g. customer orientation lacking) overly focused on profits – past measurements – short termism - focused on results rather than warning signals or opportunity exploitation indicators/alignment with corporate objectives & strategic position. In the past cost reduction & efficiencies overly emphasised with traditional systems. Need to consider effectiveness & information value (both financial & non-financial indicators) of organisational effectiveness – are we doing the right things and in what strategic/tactical/operational areas should we concentrate

Need for framework that links with corporate strategy; performance measurements both financial and non-financial, outside in view of organisation where significance of customer retention Vs shareholder value understood. Need to start with Corporate Strategy, mission and objectives so that SWOT analysis/kpi's that are relevant can be identified – then selected – then measured – then managed.

Kaplan & Norton – What gets measured gets managed. Measures need to be (1) linked with corporate strategy (2) financial and non-financial (3) internal and external (4) historic information coupled with future oriented indicators of areas to improve performance.

Four dimensions/perspectives/areas suggested by K&N -
Customer, Financial, Internal Business Processes, Innovation & Learning. Balanced Scorecard intended to provide answers to 4 key questions

Customer perspective – How do customers see the company?
Financial perspective – How does the organisation look to shareholders?
Internal perspective – What must the organisation excel at
Innovation & Learning – Can the company continue to improve (to be more effective) and to create value.
Diagram of Framework to be shown by candidates.
Within each perspective uniform & consistent approach - agree set of objectives, performance measurements (eye upon kpi/goal congruence)/performance targets, recording of actual performance against the measure, report and correct deviations (but not from a narrow traditional view but holistic view) for action to be taken with initiatives for organisational effectiveness.
Examples can be provided of sectors/industries enabling candidates to be rewarded for these.

Marking Scheme

15 Marks – Distributed as	Marks
Explanation of perceived failings of traditional measurement systems - historic, reactive, one dimensional, financial emphasis, lack of strategic focus, efficiency orientation, not keeping pace with modern day complex organisations	3
Drivers/Motivators for 'strategic performance measurement systems/Climate surrounding need for Balanced Scorecard	3
Grasp of 4 dimensions of Balanced Scorecard	4
Explanation of how the Balanced Scorecard is (a) applied & (b) over comes failings of traditional approaches – 2 marks for (a) how applied & (b) 2 marks for how BSC overcomes failings of traditional	4
Analytical/discursive style and presentation with Sectoral example (s) used	1
TOTAL	**15**

Part B

Budget – financial yardstick/ quantitative plan or forecast – good for motivating, communicating, co-ordinating & control.

Can be seen as financial short-term focus – quantitative measures only – short termism – 12 months. Performance measurements relating to kpi's/ key success areas can be excluded from process.

Lack of buy-in. Can be prepared without alignment with corporate strategy & does not filter down from top management or poorly communicated to achieve full organisational commitment from all layers/functions of organisation.

Incremental budgets – top up from previous year. Innovative thinking not encouraged with this viewpoint.

Overly focused on achieving the budget and slavish adherence to numbers in the budget.

View of budget as control mechanism – employees inappropriate behaviour – reduce spending in critical areas to achieve targets or manipulate data so that budget 'achieved'.

Costs Vs benefits of budget process setting – productive days lost – 2 to 3 months to complete budget process.

Business Environment changing rapidly – budgets cannot be static – rolling budgets some offset benefit here but assumptions must be made explicit and realism of these for future can be questioned.

Beyond Budgeting – companies need to be future oriented with strategies instead of looking back at historical numbers and past performance with control emphasis. Strategic positions of differentiation and unique propositions more significant than cost reduction and efficiencies for competitive positioning.

Measurement and Reporting – few key areas- key performance indicators selected effectively more significant than quantitative budget setting exercises.

Reward systems based on employee empowerment and training with responsibility and authority for effective decision-making rather than control and supressing innovation and creativity.

Hope and Fraser – rolling forecasts, external performance measures, reward systems more group based- competitive performance rather than comparative performance.

Budgets still need for planning and forecasting e.g. cash flow forecasts but budgets need to have more synergistic alignment with corporate strategy rather than cost efficiencies.

Marking Scheme

15 Marks – Distributed as	Marks
Explanation of criticisms of budgeting – view of budget – short termism, lack of buy in, control focus, divorced from key performance indicators, slavish adherence to budget, incremental top up perspective	6
Drivers/Motivators for introduction of Beyond Budgeting	3
Grasp of Beyond Budgeting – rolling forecasts, group based, reward systems more group based	4
Linkage between failings of budget and key tenets of Beyond Budgeting	1
Analytical/discursive style and presentation	1
TOTAL	**15**

Total Marks for Question 3 **15**

SOLUTION 4

1 B

Asset Turnover

Sales/ Average Operating Assets
€400,000/€500,000 = 80%

2 C

Return on Investment ROI
Divisional Income/Average Operating Assets
€60,000/€500,000 = 12%

3 B

Economic Value Added (EVA)
Adjusted Income for R& D – no R&D Expenses use existing Income of €60,000
Cost of Capital Charge €500,000 @ 8% = €40,000
EVA = €60,000 - €40,000 = €20,000

4 B

Profit Margin
Divisional Income/ Sales
€60,000/€400,000 = 15%

5 D

Statement (i) is the only one that is correct.
Statement (ii) is incorrect. The Capital Asset Pricing Model refers to systematic risk.
Statement (iii) is incorrect. Portfolio Theory Beta refers to co-movement of the shares selected Vs the market/relevant correlation co-efficient lying between 1 and -1

6 C

Statements (ii) and (iii) are the only ones that are correct.
Statement (i) has no relevance to Co Variance and is incorrect.

7 B

Cost per unit using absorption costing:

Direct materials	€22.00
Direct labour	16.00
Variable manufacturing overhead	5.00
Fixed manufacturing overhead (€90,000/9,000 units)	10.00
Cost per unit	€53.00

8 B

Variable Costing	€	€	€
Sales (€75 x 8,600)			645,000
Less variable expenses:			
Cost of goods sold:			
Beginning inventory	-		
Cost of goods manufactured (€43 x 9,000)	387,000		
Goods available for sale	387,000		
Less: Ending inventory (€43 x 400)	17,200	369,800	
Variable selling expenses (€3 x 8,600)		25,800	
Total variable expenses			395,600
Contribution margin			249,400
Less fixed expenses:			
Manufacturing overhead		90,000	
Selling and administrative		50,000	
Total fixed expenses			140,000
Net income			109,400

Marking Scheme

8 Questions – 2.5 marks each

Total Marks for Question 4 **20**

SOLUTION 5

Part (A)

D Limitec WACC for a public company

Marks

Capital Structure			Nominal Value	Market Value per share
Ordinary Shares		€2,500,000	€1.00	€3.95
Retained Earnings	€	6,400,000		
6.5% Preference Shares		500,000	€1.00	€1.03
Bank Loans (interest cost 8.8		€3,800,000		
8% Irredeemable Debenture		€6,000,000	100/100	€97/100

Corporation tax rate is 12.5%

Company pays dividends and expects to pay a dividend of €0.20
year and dividends are expected to grow at 2.5% per year
Expected market returns are 12%; the risk free rate is 2.6%; the compay's beta is 1.12

Cost of Ordinary shares (based on dividends): 0.20 / 3.95 +2.5% = 7.6% — 2

Cost of Ordinary shares (based on CAPM): Risk free rate + beta(expected market returns - risk free rate)
2.6% +(1.12 x (12% -2.6%)) = 13.1% — 4

Cost of Preference Shares: Pref Div 0.065 / Market price per share 1.03 = 6.3% — 2

Cost of bank Loans: After tax cost 8.8% x (1 - taxrate) = 7.7% — 2

Cost of Irredeemable Debentures: After tax cost / Curent market price = 7.2% — 2

WACC - dividend basis for Ord Shares

	Valuation	% of Total	Cost of Element	Weighted Cost	
Ordinary Shares	9,875,000	49.4%	7.6%	3.7%	0.5
6.5% Preference Shares	515,000	2.6%	6.3%	0.2%	0.5
Bank Loans	3,800,000	19.0%	7.7%	1.5%	0.5
Irredeemable debentures	5,820,000	29.1%	7.2%	2.1%	0.5
Total capital	20,010,000	100.0%			
Weighted Average Cost of Capital				7.5%	2

WACC - CAPM

	Valuation	% of Total	Cost of Element	Weighted Cost	
Ordinary Shares	9,875,000	49.4%	13.1%	6.5%	0.5
6.5% Preference Shares	515,000	2.6%	6.3%	0.2%	0.5
Bank Loans	3,800,000	19.0%	7.7%	1.5%	0.5
Irredeemable debentures	5,820,000	29.1%	7.2%	2.1%	0.5
Total capital	20,010,000	100.0%			
Weighted Average Cost of Capital				10.2%	2

TOTAL 20

Part (B)

- Exchange Rate risk – 3 types – (1) Transaction Risk (2) Translation Risk (3) Economic Risk

- Transaction Risk –Companies trade internationally – pay suppliers or receive from debtors' foreign currency from counties e.g. Irish company – USA Customer – movement in Euro/Dollar Ex Rate – we may receive less 30 days later than when the transaction occurred – 30 days' credit – hence exposure to cash loss (or gain) because of currency movement. If Euro appreciates against dollar, Irish company may receive less – hence transaction risk.

- Translation Risk – Accounting related – consolidated financial statements – subsidiaries (e.g. US based) – dollar denominated – Irish parent company incurs accounting loss on value of assets & liabilities when these US based numbers translated to Euro for consolidated accounts expressed in Euros
- Economic risk – risk of long-term exchange rate movements affecting competitiveness as we compete against other companies (same sector) bur different country and stronger currencies. Bear in mind also NPV of projects – future cash flows & effect upon long-term shareholder value – economic risk almost impossible to avoid. Also with Brexit certain sectors of Irish economy – agriculture 40% of exports to UK – over reliance on UK & Sterling may weaken further – hence cash we expect reduced & competition against UK based competitors – need for Irish companies exposed to UK markets to reduce reliance on UK & look at other markets – specific Irish factor.

- Even if your Company not affected by this 'Brexit' trading factor – your Supplier or Customer may be affected – hence long term effect on your Company.

- Transaction Risk & Translation Risk – Strategies can be used to reduce foreign exchange risk exposure. Economic risk – almost impossible to avoid or to quantify – vagaries of every-day business and economic exposure.

- Strategies can be internal & external – preferable & cheaper to pursue internal strategies under the umbrella of internal hedging – matching; netting; leading & lagging; invoicing in domestic currency

- Matching – Transaction risk – Selling us dollar denominated goods in USA – search for suppliers that invoice in dollars. Translation Risk matching – company acquiring foreign asset borrow in that currency matching term of loan & life of asset.

- Netting – Centralise at group level group foreign exchange related transactions – e.g. Siemens German subsidiary paying supplier in 90 days say $10 million – German subsidiary receiving from customer in same period say $ 8 million – exposure of $2 million – centralise – hedge – preferable to each pursuing independent exposure – stronger relationship with Bank.

- Leading & Lagging – pay foreign currency accounts at beginning date of transaction (leading) or end date (lagging) choice depends upon best timing for expected favourable exchange rate.

- External hedging strategies – Forward exchange Contracts – Fix in advance future foreign exchange rates – set up via Banks – legally binding – can be bespoke with term and size. Cash flows occur at contract execution date. Upside is that protected from adverse exchange rates. If exchange rate moves favourably, Company still legally bound to execute contract & loses benefit. Example is Ryan Air – smart use of Forward Exchange Contracts for fuel – key for Airline Industry

- External strategies can include derivatives- future contracts, swaps & options between parties. Agreement to buy or sell foreign exchange at future date at price agreed between parties. Downside is same as Forward Exchange contracts – what if there is favourable movement in forex rate- hence options can be used instead. Premium price paid for 'option' – non-refundable fee. Options used where (a) Company expects to make a forex related transaction but not sure if it will occur e.g. tendering for a foreign contract. With Brexit looming Companies in Brexit related sectors need to consider future foreign contracts – reduce exposure to UK market – may be worth paying premium for Option. Options can also be traded – if transaction or Contract does not occur – sell option to another party.

- Companies also need to consider objectives of strategy – aggressive Vs reductionist, time horizon when hedging exposure required, identify and quantify exposure, and selection of appropriate method from possibilities above. Use internal hedging where possible –less cost & easier to quantify & operate & greater control over strategy. Supplement with External hedging when required.

Marking Scheme

20 Marks – Distributed as	Marks
Explanation of Brexit landscape and why need for foreign exchange strategies	4
Grasp of risk prevalence of Brexit and types of risk – transaction, translation, economic risks	4
Explanation of hedging and grasp of hedging techniques being used	6
Realisation of existence and need for more complex external strategies – options, derivatives etc.	3
Linkage between strategic tenet – objectives of strategy and Brexit concerns with forex techniques used interspersed with sectoral examples	2
Analytical/discursive style and presentation	1
TOTAL	**20**

Total Marks for Question 5 **20**