

General Comments

The May 2012 examination produced the highest pass rate so far achieved on the P1, Performance Operations paper within the Russian Diploma at 78%.

The objective questions within Section A of the paper were generally well done, however, a few candidates did resort to lengthy calculations to support their answers and thus wasted time that could have been usefully applied to later questions. In question 1.6 many candidates calculated the total paid hours incorrectly. In question 1.8 a few candidates were not able to work out Material Purchase Budget and some did not consider a key piece of information that the cost was \$8 for purchases over 80,000 kg.

In question 2 candidates had good knowledge regarding Just In Time manufacturing but needed to be able to make comparison with traditional cost accounting.

Most candidates were well able to deal with a question on decision making using regret matrix and another question on factoring. Candidates also coped well with a question on cost-behaviour, but many made mistakes of not considering all the information provided in the scenario, such as the 10% discount and the increase in the fixed production overheads from output levels in excess of 12000 units per quarter.

Age analysis of debtors is an area where candidates performed well. The question related to the use of age analysis in a credit control system and candidates needed to not only explain age analysis but also the types of information it revealed and the use that could be made of information from such analysis.

Question 3 related to costing methods and their result. Most candidates did well on a calculation relating to overhead absorption costing (but some candidates calculated total profit instead of "profit per job"). In relation to activity-based costing significant number of candidates are weak on identifying cost-drivers. ABC can provide a variety of useful information to management but many candidates were weak in their discussion of the benefits.

Candidates generally did well on question 4 which dealt with Net Present Value and sensitivity analysis. The calculation part was well done, however, candidates were weak on the advice to management regarding the investment decision stemming from the sensitivity analysis. In part 4(c) candidates were weak in explaining the tax implications of the real cost of capital.

Section A – 20 marks

ANSWER ALL EIGHT SUB-QUESTIONS IN THIS SECTION

Question 1.1

The table below shows the output level, total cost, and the inflation index for each of the previous two periods. Cost behaviour patterns were the same in both periods and inflation applied to fixed and variable costs.

Output level	Total cost	Inflation index
4,500 units	\$15,750	1.05
6,000 units	\$20,085	1.03

The variable cost per unit, to the nearest \$0.01, at an inflation index of 1.06 is:

- A** \$2.90
- B** \$3.00
- C** \$3.06
- D** \$3.18

(2 marks)

The correct answer is D.

Question 1.2

A project requires an initial investment of \$200,000. It has a life of five years and generates annual cash inflows of \$70,000 and outflows of \$15,000 in each of the five years. The net present value of the project when discounted at the company's cost of capital of 8% is \$19,615.

The sensitivity of the investment decision to a change in the annual cash inflow is:

- A** 25.0%
- B** 21.4%
- C** 8.9%
- D** 7.0%

(2 marks)

The correct answer is D.

Workings

$$\$19,615 / \$279,510 = 7.0\%$$

Question 1.3

Which of the following would **NOT** be associated with a company that is overtrading?

- A Increasing levels of inventory
- B Increasing levels of trade receivables
- C Increasing levels of current liabilities
- D Increasing levels of long term borrowings

(2 marks)

The correct answer is D.

Question 1.4

The following information has been calculated for a business:

Trade payables payment period	55 days
Raw material inventory turnover period	39 days
Work in progress inventory turnover period	18 days
Finished goods inventory turnover period	25 days
Trade receivables collection period	44 days

The length of the working capital cycle is:

- A 11 days
- B 71 days
- C 92 days
- D 181 days

(2 marks)

The correct answer is B.

Workings

$$39+18+25+44-55 = 71 \text{ days}$$

Question 1.5

A company is preparing its budgets for next year and uses the following equation to forecast its deseasonalised quarterly sales units

$$y = 400 + 15x$$

where y is the deseasonalised sales units in the quarter and x refers to the accounting period. The quarterly seasonal variations have been found to be:

Q1	Q2	Q3	Q4
-10%	+20%	+5%	-15%

The seasonally adjusted sales for accounting period 14, which is the Quarter 2, are:

- A 442 units
- B 610 units
- C 652 units
- D 732 units

(2 marks)

The correct answer is D.

Workings

Unadjusted = $y = 400 + (15 * 14) = 610$ units
Seasonally adjusted = $610 * 1.20 = 732$ units

Question 1.6

Company X has a budgeted output of 40,000 units for the next month. Each unit of output requires 5 labour hours of production time. The budgeted labour rate is \$15 per hour.

Idle time is expected to be 20% of the total hours paid. Due to labour shortages it is expected that 25% of the total hours paid, including idle time, will be paid at the overtime rate of time and a half.

Required:

Calculate the labour cost budget for the next month.

(3 marks)

Workings

Labour hours for production

40,000 units x 5 hours = 200,000 hours

Idle time = 20% of total paid hours, therefore total paid hours need to be:

200,000 hours / 0.80 = 250,000 hours

Labour cost budget (\$)

250,000 hours x 25% x (\$15 x 1.50) = \$1,406,250

250,000 hours x 75% x \$15 = \$2,812,500

Total labour cost budget = \$4,218,750

Or

Labour cost budget (\$)

250,000 hours x £15 = \$3,750,000

250,000 hours x 25% = 62,500 hours x \$7.50 = \$468,750

Total labour cost budget = \$4,218,750

Question 1.7

SW sells goods to customers on credit only. It is forecast that sales for July will be \$40,000 and that sales will increase by \$4,000 per month in each of the following months. Based on past experience SW expects 45% of customers to pay in the month after sale, 35% of customers to pay 2 months after sale and the remainder to pay 3 months after sale. SW has a trade receivables balance outstanding at the beginning of July of \$60,000.

Required:

Calculate the total payments that SW will receive from customers during the six month period to the end of December.

(3 marks)

Workings

	July	Aug	Sept	Oct	Nov	Dec	Total
Credit sales	40,000	44,000	48,000	52,000	56,000	60,000	246,000

Cash Collected:

Outstanding receivables June	\$ 60,000
Credit sales	<u>\$300,000</u>
	\$360,000
Less receivables at 31 December	
100% December credit sales	(\$60,000)
55% November credit sales	(\$30,800)
20% October credit sales	<u>(\$10,400)</u>
Total cash collected	<u>\$258,800</u>

Other alternative approaches are acceptable.

Question 1.8

H expects to produce 2,000 units per month for the two years beginning 1 July 2012. Each unit uses 4.5kg of material.

The inventory of material on 1 July 2012 will be 6,000kg but due to a change in company policy it is planned for the inventory level to rise to 8,000kg by 30 June 2013.

The budgeted material cost is \$9 per kg for purchases up to 80,000kg in a year. The excess of purchases over 80,000kg in a year will be at a cost of \$8 per kg.

Required:

Calculate the material purchases budget in \$ for the year ending 30 June 2013.

(2 marks)

Workings

Materials Usage

2,000 units x 12 x 4.5kg = 108,000kg

Material Purchases Budget (kg)

Material usage	108,000kg
Plus closing inventory	8,000kg
Less opening inventory	<u>(6,000)kg</u>
	110,000kg

Material Purchases Budget (\$)

80,000kg x \$9 =	\$720,000
30,000kg x \$8 =	<u>\$240,000</u>
Total	\$960,000

Question 1.9

Extracts from the accounts of a company for the previous year are as follows:

	Budgeted	Actual
Fixed production overheads	\$180,000	\$165,000
Output	12,000 units	11,500 units

During the year, the inventory of finished goods fell by 700 units.

The profit for the year calculated using marginal costing was \$36,000.

Required:

Calculate the profit for the year using absorption costing.

(2 marks)

Workings

Overhead absorption rate = $\$180,000 / 12,000 = \15 per unit

Inventory fell by 700 units and therefore the profit reported by absorption costing would be lower than that reported by marginal costing

Absorption profit will be $700 * \$15 = \$10,500$ lower.

$36,000 - 10,500 = 25,500$

Absorption profit = \$25,500

Section B – 30 marks

ANSWER ALL SIX SUB-QUESTIONS. YOU SHOULD SHOW YOUR WORKINGS AS MARKS ARE AVAILABLE FOR THE METHOD YOU USE

Question 2(a)	
A manufacturing company operates a just-in-time production and purchasing system.	
<i>Required:</i>	
Explain why a backflush cost accounting system may be considered more appropriate than a traditional cost accounting system for this company.	
<i>(5 marks)</i>	
Rationale	
This question assesses learning outcome A1(h) <i>explain the impact of just-in-time manufacturing methods on cost accounting and the use of back-flush accounting.</i>	
Suggested Approach	
<ul style="list-style-type: none"> • Explain how a traditional cost accounting system operates. • Explain what a backflush cost accounting system is and how it operates. • Explain the benefits of using backflush cost accounting when just in time purchasing and production is being used <p>A good answer will clearly identify and explain why a backflush cost accounting system is more appropriate than a traditional cost accounting system where JIT purchasing and production is being used. A weak answer will explain backflush costing but will not explain how this differs from a traditional costing system and why it would be preferable where JIT purchasing and production is in operation.</p>	
Marking Guide	Marks
<ul style="list-style-type: none"> • Explanation of traditional cost accounting systems • Explanation of backflush costing process • Effect of using a JIT system • Cost accounting in a backflush costing system 	1 mark per valid point up to a max of 2 marks for each area
<u>Comments on JIT need to be relevant to backflush costing</u>	
Maximum marks awarded	5 marks
Examiner's comments	
A general weakness was that candidates spent too much time discussing JIT in general terms without making links to backflush accounting. Comments on JIT needed to be relevant to backflush accounting. Few candidates provided a good explanation and comparison to traditional cost accounting.	

Question 2(b)

A baker has to bake bread before the level of demand is known. There are three possible levels of output from the bakery: high, medium or low. Demand can be good, average or poor.

The payoff table below shows the profits the baker would earn from each of the nine possible combinations of demand and output levels.

<i>Demand level</i>	Output level		
	High	Medium	Low
Good	\$700	\$300	\$200
Average	\$200	\$400	\$200
Poor	\$(100)	\$(25)	\$(50)

Required:

(i) **Identify** which level of output would be selected if the baker applied:

- a. the maximin decision criterion
- b. the maximax decision criterion

(2 marks)

(ii) **Identify**, using a minimax regret table, the level of output that would be selected if the baker used the minimax regret decision criterion.

(3 marks)

(Total for sub-question (b) = 5 marks)

Rationale

The question assesses learning outcome D1(a) *analyse the impact of uncertainty and risk on decision models that may be based on relevant cash flows, learning curves, discounting techniques etc.* It examines candidates' ability to apply various decision making criteria to a particular decision.

Suggested Approach

In part (i) candidates should review the payoff matrix to determine the order level that the decision maker would select if they applied the maximin and maximax decision criteria. In part (ii) candidates should produce a regret matrix, determine the maximum regret at each of the order levels and then select the order level that minimises the maximum regret.

Marking Guide

Marks

(i) (a) Medium

1 mark

(i) (b) High

1 mark

(ii) Minimax Regret Table

2 marks

The maximum regret if bakes at the high level is \$200
 The maximum regret if bakes at the medium level is \$400
 The maximum regret if bakes at the low level is \$500

1 mark (for correct level based on own minimax regret matrix)

Therefore bake at the high level

Maximum marks awarded

5 marks

Examiner's comments

Generally well answered. Weaker candidates were not able to produce the Regret Table in part (ii).

Question 2(c)	
<p>The sales of a new small company are growing rapidly and the company is having trouble managing its trade receivables.</p> <p><u>Required:</u></p> <p>Discuss the advantages AND disadvantages to the company of factoring as a method of managing trade receivables.</p> <p style="text-align: right;"><i>(2 marks)</i></p> <p style="text-align: right;"><i>(Total for sub-question (c) = 5 marks)</i></p>	
Rationale	
<p>The question assesses learning outcome E1(f) <i>analyse the impacts of alternative debtor and creditor policies</i>. It examines candidates' ability to discuss the advantages and disadvantages of factoring as a method of managing a company's trade receivables.</p>	
Suggested Approach	
<p>Candidates should firstly consider the potential benefits to a company of using factoring and then contrast with the potential disadvantages that can arise from its use.</p>	
Marking Guide	Marks
Identify and explain each advantage to company of factoring.	1 mark per valid point
Identify and explain each disadvantage to company of factoring.	Up to 3 marks for either advantages or disadvantages
Maximum marks awarded	5 marks
Examiner's comments	
<p>Generally well answered, however, some candidates only listed the advantages and disadvantages rather than discuss them. Some candidates also spent time discussing the impact of factoring on liquidity when the question asked for advantages and disadvantages.</p>	

Question 2(d)

Extracts from a manufacturing company's production budgets for quarters 1 and 2 are as follows:

	Quarter 1	Quarter 2
Budgeted output	7,500 units	10,000 units

Budgeted production costs	\$	\$
- Materials	360,000	480,000
- Labour	310,000	390,000
- Overheads	410,000	470,000

The cost structure, which is expected to continue unchanged in quarter 3, is as follows:

- (i) All variable cost elements are linear and vary in direct proportion to volume.
- (ii) There is a bulk purchase discount of 10% on materials if orders exceed \$500,000 per quarter. The discount will apply to the purchase of all materials in that quarter.
- (iii) The company operates a just in time system for material purchases.
- (iv) Fixed production overheads will increase by \$35,000 per quarter for output levels in excess of 12,000 units in a quarter.

The budgeted output for quarter 3 is 13,000 units.

Required:

Prepare the production cost budget for quarter 3.

(5 marks)

Rationale

The question examines candidates' ability to identify the cost behaviour for different cost items and then apply this knowledge to calculate the budgeted costs for a different activity level. The ability to apply the high-low method of cost analysis is examined.

Suggested Approach

Candidates should firstly identify whether each of the cost items is fixed, variable or semi-variable. The semi-variable costs should be split between their fixed and variable elements using the high-low method. Candidates should then use the identified cost behaviour patterns to calculate the budgeted costs for the activity level in quarter 3.

Marking Guide

Marks

Calculation of Production Labour - Variable cost per unit	½ mark
- Fixed Cost	½ mark
Calculation of Production Overheads - Variable cost per unit	½ mark
- Fixed Cost	½ mark

Quarter 3

Calculation of Direct Material Cost	1 mark
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Calculation of Production Labour Cost	1 mark
Calculation of Production Overheads	1 mark
Alternative approaches to production cost budget are accepted.	
Maximum marks awarded	5 marks
Examiner's comments	
Well answered by many candidates. Common mistakes included forgetting to apply the 10% discount for materials, calculating incorrect variable costs for production labour and production overheads and not adding \$35000 as per information given.	

Question 2(e)

The manager of a theme park is deciding whether or not to advertise a new ride at the park. Ticket sales for the park are dependent on the weather. Weather forecasts show that there is 60% chance that the weather will be good and a 40% chance that it will be poor.

If the weather is poor it is expected that 4,000 tickets will be sold without advertising. If the ride is advertised and the weather is poor, there is a 70% chance that the advertising will stimulate further demand and ticket sales will increase to 7,000.

If the weather is good it is expected that 9,000 tickets will be sold without advertising. If the weather is good there is a 20% chance that the advertising will stimulate demand and ticket sales will increase to 11,000.

The profits expected, before deducting the cost of advertising, at different levels of ticket sales are as follows:

<i>Number of tickets sold</i>	<i>Profit \$</i>
4,000	(18,000)
7,000	54,000
9,000	64,000
11,000	112,000

The cost of advertising the ride will be \$28,000.

Required:

Demonstrate, using a decision tree, whether the ride should be advertised.

(5 marks)

Rationale

The question examines candidates' ability to use decision trees to evaluate a decision where there is uncertainty regarding expected cash flows.

Suggested Approach

Candidates should firstly establish the decision that has to be made and then draw the decision tree showing each of the possible outcomes. The expected value for each of the possible outcomes can then be calculated.

A good answer will provide a clearly constructed decision tree showing the expected payoffs for each possible outcome.

Marking Guide

Marks

Calculation of each pay-off	½ mark (up to a maximum of 3 marks)
Decision tree format	1 mark
Correct decision	1 mark

Maximum marks awarded

5 marks

Examiner's comments

Answered well by many students. Errors were made when calculating the profit if the option with advertising is selected. It was often the case that \$28000 was not deducted from the \$57120 or the decision tree was done with good/bad weather rather than advertise/do not advertise.

Question 2(f)	
<p>Explain the information that would be shown in an “age analysis of outstanding debts” and how it can be used in a credit control system.</p> <p style="text-align: right;"><i>(5 marks)</i></p>	
<p>Rationale This question assesses syllabus area E1 (e) analyse trade debtor and creditor information through age analysis of outstanding debt.</p>	
<p>Suggested Approach Candidates needed to describe age analysis of outstanding debt, explaining the types of information it would reveal and the uses it can have.</p>	
<p>Marking Guide</p> <p>Description of age analysis of outstanding debt.</p> <p>Types of information revealed by the analysis, and/or uses it can have.</p>	<p>Marks</p> <p>2 marks</p> <p>1 mark per point (max. 3 marks)</p>
Maximum marks awarded	5 marks
<p>Examiner’s comments Generally this question was less well answered. Some candidates spent too much time writing about the measures that can be applied to troublesome customers, other candidates wasted time writing about what an aged debtor report would look like, or describing credit control procedures.</p> <p>Only a small proportion of candidates mentioned analysis of customer balances in relation to their credit limits. Very few candidates mentioned the use of age analysis to monitor targets to measure the performance of the credit control section.</p>	

Section C – 50 marks
ANSWER BOTH QUESTIONS

Question 3

- (a) **Calculate** the profit per job for each of the three types of job using an overhead absorption rate based on revenue. (5 marks)
- (b) **Calculate** the profit per job for each of the three types of job using activity-based costing. (13 marks)
- (c) **Discuss** the benefits of the additional information provided by the consultant's analysis. (7 marks)

(Total for Question Three = 25 marks)

Rationale

Part (a) of the question assesses learning outcome A1(a) *compare and contrast marginal (or variable), throughput and absorption accounting methods in respect of profit reporting and stock valuation*. It examines candidates' ability to calculate the cost of a service using a traditional method of overhead absorption. Part (b) assesses learning outcome A1(c) *discuss activity-based costing as compared with traditional marginal and absorption costing methods, including its relative advantages and disadvantages as a system of cost accounting*. It requires candidates to be able to apply activity based costing to the calculation of service costs. Part (c) assesses learning outcome A1(c) *discuss activity-based costing as compared with traditional marginal and absorption costing methods, including its relative advantages and disadvantages as a system of cost accounting*. It examines candidates' ability to explain the potential benefits of the information for management decision making.

Suggested Approach

In part (a) candidates should identify the direct costs for each procedure and then calculate the overhead absorption rate. This rate can then be applied to each procedure and the profit calculated. In part (b) candidates need to calculate a cost driver rate for each of the activities and then apply this cost driver rate to calculate the overhead cost for each activity per procedure. In part (c) the profit per procedure can then be recalculated using the overhead costs per procedure calculated in (b). In part (c) candidates need to clearly explain how the information collected by the project team and the results of the calculations in parts (a) and (b) would be of benefit to management.

Marking Guide

Marks

(a)	
Income (all three jobs)	½ mark
Designer's fee (all three jobs)	½ mark
Materials	½ mark
Overhead cost	3 marks
Profit per job	½ mark
	Total 5 marks
(b)	
Cost per driver for each of the four activities (1 mark for number of drivers and 0.5 mark for cost per driver)	1.5 marks (sub-total 6 marks)
Overheads per job:	
- Paint bay set up	1.5 marks
- Paint bay activity	1.5 marks
- Crew operations	1.5 marks
- Other overheads	0.5 marks
Marks are for the application of drivers previously calculated.	(sub-total 5 marks)
Overhead cost	1 mark
Profit per job	1 mark
Instead of workings 'per job', some candidates will work in total and finally divide by the number of jobs. This is acceptable.	Total 13 marks
(c)	
Purpose of ABC	Up to 2 marks
Usefulness of ABC information to management	1 mark/ point
Interpretation of findings from the question scenario using ABC system	1 mark/point
Other relevant points e.g. use of ABC to inform activity-based management	1 mark/point
	Max 7 marks

Maximum marks awarded

25 marks

Examiner's comments

Candidates made good attempt at part (a) of the question, however, many candidates only calculated the 'total profit' when the question asked for 'profit per job'. In part (b) candidates failed to identify the number of drivers and driver for each of the four activities. In part (c) many candidates tended to describe ABC system in general terms but should have related it to the scenario in this question.

Question 4

(a) Calculate the net present value (NPV) of the new facility.

(16 marks)

(b) Explain how sensitivity analysis would help management when deciding whether or not to invest in the new surgery facility.

(4 marks)

(c) Explain how a “real” discount rate could have been used instead of the “money” discount rate to calculate the NPV of this project.

Your answer should consider the potential difficulties in using a real discount rate when taxation is involved in the project appraisal and include the calculation of the “real” discount rate.

(5 marks)

(Total for Question Four = 25 marks)

Rationale

Part a) of the question examines candidates’ ability to calculate the net present value of a project involving the identification of relevant costs and calculation of the effect of inflation and taxation. Part b) examines the candidates understanding of sensitivity analysis (new). Part c) examines the candidates understanding of the treatment of inflation in investment appraisal.

Suggested Approach

In part a) candidates should firstly identify the incremental cash flows of the project then calculate the tax effect of the cash flows taking account of the timing of the tax payments. The resultant net cash flows should then be discounted at the company’s cost of capital. In part b) candidates should explain that capital investment appraisal involves risk and uncertainty. The projected cash flows are based on forecasts about the increased occupancy rate, new charges for the rooms and other factors. None of these values are known with certainty. Sensitivity analysis involves running “what if” scenarios and testing the impact on the Net Present Value (NPV) of the project. In part c) candidates should calculate the real discount rate which could be applied to cash flows that were not adjusted for inflation. They should also appreciate the problem involved with this approach where there is tax implication in the appraisal.

Marking Guide

Marks

(a)

Total revenue calculation – without new facility

Up to 3 marks

Total revenue calculation – with new facility

Up to 2 marks

Incremental costs:

- Employees

½ mark

- Overheads

½ mark

Incremental cash flow (Year 1)

1 mark

Taxation (year 1 to 4):

- Net cash flows

1 mark

- Tax depreciation

1 mark

- Taxation

1 mark

Net Present Value:

- Residual value

1 mark

- Tax paid

2 marks

- NCF after tax

1 mark

- Present Value

1 mark

Net Present Value

1 mark

Total 16 marks

(b)		
I mark per relevant point on how sensitivity can aid management in their decision on whether to invest in the new surgery.		Max. 4 marks
(c)		
Explanation of general approach to express “real” discount rate.		1 mark
Use of correct formula to calculate real cost of capital.		1 mark
Correct calculation.		1 mark
Explanation of problems where there are tax implications.		Up to 2 marks
		Total 5 marks
Maximum marks awarded		25 marks
Examiner’s comments		
<p>4(a) produced good answers from many candidates and it was impressive that a lot of students came to the right answer. Common mistakes amongst weaker candidates included:</p> <ul style="list-style-type: none"> - Using full revenue with the new facility as net cash flows i.e. £4,626,720 - Incorrect capital allowance in Year 4; - Adding residual value of £50 to the net cash flow in year 4; - Not including capital allowance or tax in NPV calculation; - Not phasing tax and/or capital allowance. <p>4(b) – candidates tended to give weak responses to this question. Very few candidates mentioned risk and uncertainty. In this scenario the projected cash flows are based on forecasts about the increased occupancy rate, new charges for the rooms and other factors. None of these factors are known with certainty.</p> <p>4(c) Candidates generally used the correct formula to calculate the real cost of capital, but could not explain the tax implications.</p>		