Pearson LCCI
Level 3 Certificate in Advanced Business Calculations (ASE3003)

Annual Qualification Review
2014/2015

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INTRODUCTION

The annual qualification review provides qualification–specific support and guidance to centres. This information is designed to help teachers preparing to teach the subject and to help candidates preparing to take the examination.

The reviews are published in September and take into account candidate performance, demonstrated in both on demand and series examinations, over the preceding 12 months. Global pass rates are published so you can measure the performance of your centre against these.

The review identifies candidate strengths and weaknesses by syllabus topic area and provides examples of good and poorer candidate responses. It should therefore be read in conjunction with details of the structure and learning objectives contained within the syllabus for this qualification found on the website.

The review also identifies any actual or proposed changes to the syllabus or question types together with their implications.

PASS RATE STATISTICS

The following statistics are based on the performance of candidates who sat this qualification between 1 October 2014 and 31 August 2015.

Global pass rate	70.9%

Grade distributions of candidates achieving pass or higher

Pass	15.0%
Merit	26.3%
Distinction	29.5%

* This figure excludes absences on the day of the exam

GENERAL STRENGTHS AND WEAKNESSES

General candidate strengths and weaknesses

Candidate Strengths

- clear layout of answers
- good level of overall numeracy
- good understanding of basic business calculations
- many candidates have an excellent grasp of a wide range of business calculations, and as a consequence distinctions are common
- transferring question numbers to the front of the answer booklet
- these strengths are as seen in previous years, though examiners have noted that these have continued to reduce as compared to past years

Weaknesses

- failing to provide answers to a required or appropriate level of accuracy
- inappropriately providing a restatement of a numerical answer when an explanation and/or interpretation is required
- a relatively small number of candidates enter the examination hall with a poor grasp of the subject, and their marks reflect this
- confusion among principle, interest and amount in calculations and offered answers is often seen
- a significant minority of candidates offer simple interest answers where compound interest is specifically requested, and vice versa; a similar confusion is sometimes seen in other syllabus areas, such as confusion between methods of depreciation
- some candidates will use a rounded answer when a more accurate figure is available and more appropriate; this is most commonly seen in money answers
- there is some evidence of rote learning at the expense of understanding, in that some candidates will provide an answer appropriate to a question in a previous paper, where the wording was superficially similar but the difference is significant
- some candidates appear unfamiliar with certain syllabus topics; for example, each year a significant number of candidates handle fairly straightforward questions on indices poorly

TEACHING POINTS BY SYLLABUS TOPIC

Syllabus Topic 1: Simple and compound interest

During the year, this syllabus section was examined in each series paper, with both simple and compound interest being examined in the period. The topics were examined within business topics, including within questions on other syllabus topics.

Questions on this topic were generally well answered. Candidates occasionally used simple interest when compound interest was asked for, and there were also instances of using compound interest when simple interest is asked for, resulting in a more difficult calculation than was requested. Candidates often appeared unfamiliar with the products method. Questions are intended to test a specific method or methods, and using a method other than the one specified in that part of the question will inevitably lose marks.

Candidates should understand that interest is normally paid or received to the nearest penny, and that giving answers to an inappropriate degree of accuracy is inaccurate and may be penalised.

The teaching points for the candidates are:

- be familiar with all methods required by the syllabus
- identify the method of interest required by the question
- be able to use trial and improvement or (optionally) logarithms or other method to calculate the duration of a compound interest loan
- perform all calculations accurately
- be familiar with the difference between principle, interest, and amount (principle plus interest), and make this clear in the answer
- when using compound interest, be able to calculate using the year on year method and also using the formula, and use the appropriate method when specified
- understand and apply the requirement to give answers 'to the nearest penny' or pound, to a given number of significant figures or decimal places
- where no requirement for a particular level of accuracy is stated, understand the need to give answers to a suitable degree of accuracy. If in doubt, this should be to two decimal places of a pound, dollar, euro or other currency.

Syllabus Topic 2: Stock exchanges

Candidates were required to answer questions on shares, stocks and unit trusts.

The topic was examined in each paper during the period.

Questions on this topic were generally well answered. Candidates were generally familiar with all topics, though sometimes with not all aspects of a calculation.

The teaching points for the candidates are:

- be familiar with all methods required by the syllabus
- understand nominal value for stock and its use in calculations of interest
- understand nominal value for shares and its use in calculations of interest
- understand the different methods of calculating interest for ordinary shares
- understand commission, both as a percentage and a flat rate, and that it is paid rather than earned when both buying and selling shares
- understand that when a rounded figure is used in a calculation then the answer will only have a limited accuracy, and be able to interpret this correctly

Syllabus Topic 3: Business ownership

Candidates are required to understand and calculate revenue and costs, and to use them in break-even analysis. Calculation or graphical methods may be required.

The topic was examined in each paper during the period.

Questions on this topic were often well answered. Candidates were generally familiar with the basic concepts of all topics, but some had difficulty in applying these beyond the more straightforward calculations.

The teaching points for the candidates are:

- be familiar with all methods required by the syllabus
- identify the method appropriate to the question
- be able to handle different requirements in different questions and different methods required in the same question
- understand contribution per unit, and be able to use it appropriately
- be able to apply standard calculations in a range of situations
- be aware of the different types of graph used to calculate break-even, be able to draw them accurately, interpret them, and interpret data connected with them
- understand the difference between stating and explaining an answer, when required.

Syllabus Topic 4: Profitability and liquidity

Candidates were required to understand, calculate, use and interpret ratios to assess profitability and liquidity, and profit and loss in the context of accounts and balance sheets.

The topic was examined in each paper during the period.

Questions on this topic were generally well answered. Candidates were generally familiar with the required calculations of profitability and liquidity.

The teaching points for the candidates are:

- be familiar with all methods required by the syllabus
- be familiar with information presented in the form of a balance sheet, or cut down balance sheet, or information derived from a balance sheet or other business data
- be able to apply standard calculations in a range of situations
- understand the significance of net purchases and net sales, and where appropriate use these in preference to gross figures
- be aware of guideline figures for acid test ratio and current ratio, and be able to explain both what these figures mean in general and what specific figures mean for the healthy liquidity of a normal company
- understand the difference between stating and explaining an answer, when required.
- understand the difference between the rate of stockturn (stock turnover) per annum and the average number of days items are held in stock, and provide the answer in the form requested.

Syllabus Topic 5: Investment appraisal

Candidates are required to calculate using the methods of payback period, average rate of return, net present value and internal rate of return, to interpret these figures, and to appraise projects in comparison to each other and to set criteria.

The topic was examined in each paper during the period.

Questions on this topic were often well answered. Candidates were generally familiar with the basic concepts of all topics, though some candidates appear unfamiliar with calculations for net present value and internal rate of return, in particular.

The four methods of investment appraisal are all quite different in nature, both in form of calculation and interpretation, and so teaching points are provided for each, as well as more generally.

The teaching points for the candidates are:

- be familiar with all methods required by the syllabus
- identify the method appropriate to the question
- be able to apply standard calculations in a range of situations
- when calculating payback period, understand the difference between a decimal of a year and a number of months, and be able to convert between them
- understand that, since there are a variety of methods in use for accounting rate of return, a particular calculation of accounting rate of return would be required by a particular employer, and so a specific calculation of 'average rate of return' is required by this syllabus
- understand that project cost is a negative figure in calculating net present value
- understand and use the concept of 'year zero', where expenditure occurs before the first year in which revenues are received
- understand the relationship between percentage discount rate and the discount factor for a particular year, and be able to perform calculations based on this
- treat both positive and negative net present values with appropriate care in calculations of internal rate of return
- understand that the standard calculation of internal rate or return is based on straight line interpolation, and that this is not perfectly accurate
- understand that interpolation is more accurate that extrapolation
- understand the difference between stating and explaining an answer, when required
- when comparing figures with each other or with a given figure, understand whether higher or lower figures are preferred, and when a numerical difference is significant in business planning.

Syllabus Topic 6: Bankruptcy

Candidates are required to understand and use the concepts of assets and liabilities, secured and unsecured creditors, costs of winding up, and dividend, all in relation to bankruptcy.

The topic was examined in each paper during the period.

Questions on this topic were often very well answered. Candidates were generally familiar with the difference between secured and unsecured creditors. Candidates were generally familiar with the required calculations of rate in the pound paid to unsecured creditors, and amount paid to creditors.

The teaching points for the candidates are:

- bankruptcy involves actual payments, and so figures for amount paid or amount owed should normally be given to the nearest penny
- be familiar with all methods required by the syllabus
- identify the method appropriate to the question
- be able to apply standard calculations in a range of situations
- understand the difference between assets and liabilities, and be able to

identify whether a particular item is an asset or liability
- make sure that the money owed and paid to secured creditors is not included in calculations of rate payable to unsecured creditors
- understand that although rate payable can usefully be expressed as a percentage, it is normally required to be stated in the appropriate currency
- understand that the rate payable cannot be negative or greater than one, and use this to check and correct answers
- understand the difference between the amount owed to a creditor and the amount paid, and in particular that the amount paid to a creditor will not be greater than the amount owed to that creditor
- handle calculations where a creditor is owed money both as a secured creditor, for certain monies, and as an unsecured creditor for others.

Syllabus Topic 7: Depreciation of Business Assets

Candidates are required to calculate using the equal instalment method and the diminishing balance method for depreciation of business assets.

The topic was examined in each paper during the period.

Questions on this topic were often well answered. Candidates occasionally used the equal instalment method when the diminishing balance method was asked for, and less frequently used the diminishing balance method when the equal instalment method was asked for.

Depreciation involves estimation, and therefore the appropriate level of accuracy for rounded answers for this topic is less than other questions. Candidates are still expected to use an appropriate level of accuracy. Candidates should be aware that omitting decimals of a pound will not be penalised.

The teaching points for the candidates are:

- be familiar with all methods required by the syllabus
- identify the method appropriate to the question
- be able to apply standard calculations in a range of situations
- take care to provide all required elements when a table is asked for
- remember that depreciation does occur in year 1, but not in year 0
- understand that the equal instalment method involves straight line depreciation, where the depreciation is the same each year
- understand that in the diminishing balance (or reducing balance) method, the amount of depreciation also reduces each year, and that, for both columns of figures, the ratio of adjacent years is a constant for a particular rate of depreciation
- when using the equal instalment method, be able to calculate the amount of depreciation per annum from figures supplied, including when these are the initial cost and scrap value, and when they are in an incomplete table
- when using the diminishing balance method, be able to calculate the percentage depreciation per annum from figures supplied, including when these are the initial cost and scrap value, and when they are in an

incomplete table
- understand that the diminishing balance method will never produce a net book value that is negative
- understand that the equal instalment method may mathematically produce a negative value, and further understand that negative figures for book value are inappropriate.

Syllabus Topic 8: Index numbers

Candidates are required to calculate and interpret price and quantity indices and relatives, and to understand the difference between them, to change the base year of indices, including for chain base indices, and to calculate composite indices.

The topic was examined in each paper during the period.

Questions on this topic were often well answered. Some candidates were inclined to offer a relative when an index was asked for, and vice versa, or to offer these in the form of a percentage. Some candidates were inclined to offer price index or price relative as a monetary unit, commonly with a £ sign. Not all candidates were able to handle all sub-topics with equal reliability.

The teaching points for the candidates are:

- be familiar with all methods required by the syllabus
- identify the method appropriate to the question
- be able to apply standard calculations in a range of situations
- take care to provide answers in the form required
- understand that a relative is numerically the same as the ratio of a value in one year to that in the base year, and that relatives are often close in value to 1
- understand that an index is numerically the same as a value in one year expressed as a percentage of that in the base year, and that indices are often close in value to 100
- understand that an index should not be shown with a percentage sign
- understand that relatives and indices do not have units, so that '£' or 'units' is inappropriate and incorrect
- provide answers to an appropriate degree of accuracy. For index numbers, for example, this will generally be the same level of detail as the index figures supplied
- understand the difference between stating and explaining an answer, when required
- be able to derive simply a percentage increase or decrease from an index number or relative
- be able to state clearly the base and current dates to which an index, relative, or percentage change relates
- understand that an index or relative indicates a change in a particular quantity, such as price or quantity or level of production or cost of living, and be able to state clearly the quantity that has changed.

General

Candidates should read each question carefully and pay attention to key words and phrases. Candidates should be familiar with all methods required in the syllabus. In particular candidates should identify the appropriate method and not offer an alternative method where a specific one is required.

Accuracy is important in business calculations, and this applies equally to:

- reading the question
- carrying out the calculation
- laying out the answer
- stating the answer

Candidates should take care to provide workings and not just numerical answers.

In all syllabus topics, candidates should be able to demonstrate understanding of their answer, and occasionally this is tested by questions that ask for an explanation of a particular answer or value. Candidates should be aware that when an explanation or interpretation is requested, a restatement of a previous numerical answer in words will generally receive no credit.

Candidates should:

- be aware of the difference between a restatement of an answer and an explanation
- provide an explanation or interpretation as if to a client
- be aware that the client, while understanding the principles of business, may not have received training in accountancy or business calculations
- provide explanations and interpretations that are comprehensible to such a client
- provide explanations and interpretations that are clear, succinct, cover all important points, and avoid or explain technical terms
- provide advice if appropriate or required

An explanation may require a comparison between two or more figures, for example by stating which of two or more options

- earns the higher interest, or equivalent financial gain
- is the more profitable method of production
- is expected to be the better investment
- is the more likely to be accurate

An explanation may require a comparison between a calculated figure and a requirement or guideline, for example:

- comparing a calculated acid test ratio or current ratio with a guideline figure
- comparing a calculated internal rate of return with a required rate of return
- interpreting a figure for internal rate of return as a percentage earned

- interpreting a figure for net present value as a comparison between the estimated outflow and inflow and a required rate of return

Required answers may not be limited to these considerations.

EXAMPLES OF CANDIDATE RESPONSES

Series 3 2015 – Question 5 on Syllabus Topic 5: Investment Appraisal

5. A business owner has a choice of two investment projects, Project A and Project B.
The estimated costs and returns are as follows:

	Project A	**Project B**
	£	**£**
Initial cost (investment)	230,000	150,000
Year 1 cash inflow	40,000	25,000
Year 2 cash inflow	60,000	50,000
Year 3 cash inflow	60,000	60,000
Year 4 cash inflow	60,000	Figure missing
Year 5 cash inflow	60,000	Figure missing

(a) Calculate the payback period for Project A. Give your answer in years and months. (4)

The payback period for Project B is 3 years 3 months.

(b) Advise the business owner which project is the better investment. You must give a reason. (1)

(c) Calculate the net present value of Project A, using a discount rate of 8% and the following table.

	Discount factor
Year 1	0.926
Year 2	0.857
Year 3	0.794
Year 4	0.735
Year 5	0.681

(4)

The net present value of Project B, using the same discount rate, is £7,740 (positive).

(d) Calculate the revised net present value of Project B if the year 1 cash inflow is increased from £25,000 to £35,000. (3)

LOW RESPONSE:

Examiner's Response:

Candidate response A is a bare pass response, scoring 6 marks, which is 50% of the question total.

The candidate has earned full marks on sections (a) and (b), on payback period.
In section 5(a) the candidate has correctly used cumulative inflow/outflow to identify the year in which payback occurs and the payback required in that year.

The candidate has correctly indentified the proportion of year that this represents, converted this correctly to months, and hence correctly calculated the payback period.
In section 5(b), they have correctly identified the preferred investment (project B) and the reason for this preference (faster payback). They have not been penalised for attempting an additional reason.

In section 5(c), they have made a step towards finding the net present value by calculating the present values of the anticipated returns. However, no allowance has been made for the initial cost, and hence they were unable to identify either the net present value or whether it was positive or negative.
The final section was not attempted.

Question 5

a) calculate the payback period for project A.

project A		Accumulative
year 1 cash inflow	40 000	230000 − 40000 = 190000
year 2 Cash inflow	60000	190000 − 60000 = 130000
year 3 cash inflow	60000	130000 − 60000 = 70000
year 4 cash inflow	60000	70000 − 60000 = 10000
year 5. Cash inflow.	60000	10000 − 60000 = (50000)

Initial cost. = 230000

payback period = 4 year + $\frac{10000}{60000}$ × 12 month

= 4 year 2 month

4

b) project B should be choosen. because it is higher risk ~~but~~ and redeemption will be higher ~~cost~~ and payback period is short. 1

c) project A.

		Discount factor	PV
year 1	40000	0.926	37040
year 2	60000	0.857	51420
year 3	60000	0.794	47640
year 4	60000	0.735	44100
year 5	60000	0.681	40860

~~NPV~~ ~~NPV~~ = 221060

~~cost~~ = ~~230000~~

~~NPV~~ ~~−8940~~

∴ NPV = 221060

d) 0

6

MEDIUM RESPONSE:

Examiner's Response:

Candidate response B earned 7 marks, being one mark over half marks, and is the closest mark to a bare merit mark.

In section 5(a) the candidate has correctly used cumulative inflow/outflow to identify the year in which payback occurs and has calculated the payback required in that year, but has not identified this correctly and has used an incorrect figure subsequently. They have then applied the correct calculation for the proportion of the year and the number of months at which payback occurs.

In section 5(b), they have correctly identified the preferred investment (project B), based on their payback period for project A, but not the reason for this preference (faster payback).

In section 5(c), the candidate has carried out all stages of the calculation correctly and correctly identified the amount and sign of the net present value.

In section 5(d), the candidate has not identified an effective method for finding the answer, but has provided one step of this, in the form of a present value figure for the new Year 1 cash inflow.

Question 5 (a)

Project A

Year	Cash flow	Accumulated Net Present Value
0	(230 000)	(230 000)
1	40 000	(190 000) = (230 000 - 40 000)
2	60 000	(130 000) = (190 000 - 60 000)
3	60 000	(70 000) = (130 000 - 60 000)
4	60 000	(10 000) = (70 000 - 10 000)
5	60 000	50 000 = (- 10 000 + 60 000)

Payback Period = 4 year + (60 000 - 10 000 / 60 000) × 12 month
= 4 year 10 month

2

(b) Project B - Because project b of the payback period is the better.

0

(c)

Project A

Year	Cash flow	Discount factor @ 8%	Net Present Value
0	(230 000)	1	(230 000)
1	40 000	0.926	37 040
2	60 000	0.857	51420
3	60 000	0.794	47640
4	60 000	0.735	44100
5	60 000	0.681	40860
		Loss:	(8940)

4

Net Present value is -8940.

(d)

Project B

Year	Cash flow		Discount factor @ 8%	Net Present Value
0	(150 000)		1	(150 000)
1	35 000		0.926	32410
2	50 000		0.857	42850
3	60 000		0.794	47640
4	13170	(9680/0.735)	0.735	9680
5	14214	(9680/0.681)	0.681	9680
			Profit	7740

1

7

HIGH RESPONSE:

Examiner's Response:

Candidate C has most sections of the question completely correct, scoring 9 marks, being 75% of the 12 marks available, the mark required for a bare distinction.

In section 5(a), the candidate has provided an abbreviated version of the mark scheme answer, but with correct statements and figures throughout, for full marks, and has been similarly correct and efficient in 5(b).

In section 5(c), the candidate has provided cumulative figures for present value, instead of individually by year. The figures are numerically correct but with incorrect sign throughout, and the correct answer figure of 8,940 (with incorrect sign) earned the candidate 3 of the 4 marks.

This candidate's answer to section 5(d) is identical with the one in the mark scheme, but with one difference, the use of £32,000 instead of £25,000. This figure does not occur in the question, not elsewhere in the candidate's answers, so we are unable to say if this is a misread or some other error. Nevertheless, the candidate gains one of the three marks for finding the present value of the new Year 1 cash inflow.

5.

a) Project A

	investment	payback
Initial cost	230,000	
cash inflow (Year 1 - Year 4)		220,000
Year 5 $\frac{10,000}{60,000}$ x 12 months = 2 months		10000

Payback period for Project A = 4 years 2 months 4

b) Project B. Because payback period product B faster than product A. 1

c.

Year	cash inflow	discount factor	net present value of Project A
1	40000	0.926	192960
2	60000	0.857	141540
3	60000	0.794	93900
4	60000	0.735	49800
5	60000	0.681	8940

3

d) (35000 x 0.926) - (32000 x 0.926)
= 32410 - 29632
= £2778 1

net present value = £7140 + £2778
= £10518

9

5.

a) Project A

	investment	payback
Initial cost	230,000	
cash inflow (Year 1 - Year 4)		220,000
Year 5 $\frac{10,000}{60,000}$ x 12 months = 2 months		10000

Payback period for Project A = 4 years 2 months 4

b) Project B. Because payback period product B faster than product A. 1

c.

Year	cash inflow	discount factor	net present value of Project A
1	40000	0.926	192960
2	60000	0.857	141540
3	60000	0.794	93900
4	60000	0.735	49800
5	60000	0.681	8940

3

d) (35000 x 0.926) - (32000 x 0.926)
= 32410 - 29632
= £2778 1

net present value = £7140 + £2778
= £10518

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