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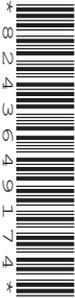
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**COMMERCIAL STUDIES**

**7101/21**

Paper 2 Arithmetic

**October/November 2015**

**2 hours**

Candidates answer on the Question Paper.

Additional Materials:      Electronic calculator  
   Ruler

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name in the spaces provided above.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

**DO NOT WRITE IN ANY BARCODES.**

Answer **all** questions in **Section A** and any **two** questions from **Section B**.

All working must be clearly shown in the space provided and should be done on the same sheet as the rest of the answer.

The businesses described in this Question Paper are entirely fictitious.

You may use a calculator in this examination.

**N.B. £1 = 100p.**

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **16** printed pages.

**Section A (76 marks)**Answer **all** questions in this section.**1** Calculate**(a)**  $1\frac{3}{4} \div 3.25$ , rounding your answer to 4 decimal places,*Answer (a)* .....[2]**(b)**  $3\frac{1}{3}\%$  of \$780,*Answer (b) \$* .....[2]**(c)**  $3.5 + 90.1 \div 1.7$ .*Answer (c)* .....[2]

- 2 (a) A shop sells a brand of instant coffee which is available in jars containing 200 grams (g) costing £5.78 and in jars containing 100g costing £3.12.

How much is saved by buying one 200g jar of coffee rather than two 100g jars of coffee?

*Answer (a)* £ .....[3]

- (b) Glass jars each weighing 450g are used to hold the 200g of coffee. These are delivered to the shop in boxes each holding 24 jars. The packaging weighs 300g per box.

Calculate the total weight of eight boxes of 200g jars of coffee. Give your answer in kilograms.

*Answer (b)* ..... kg [5]

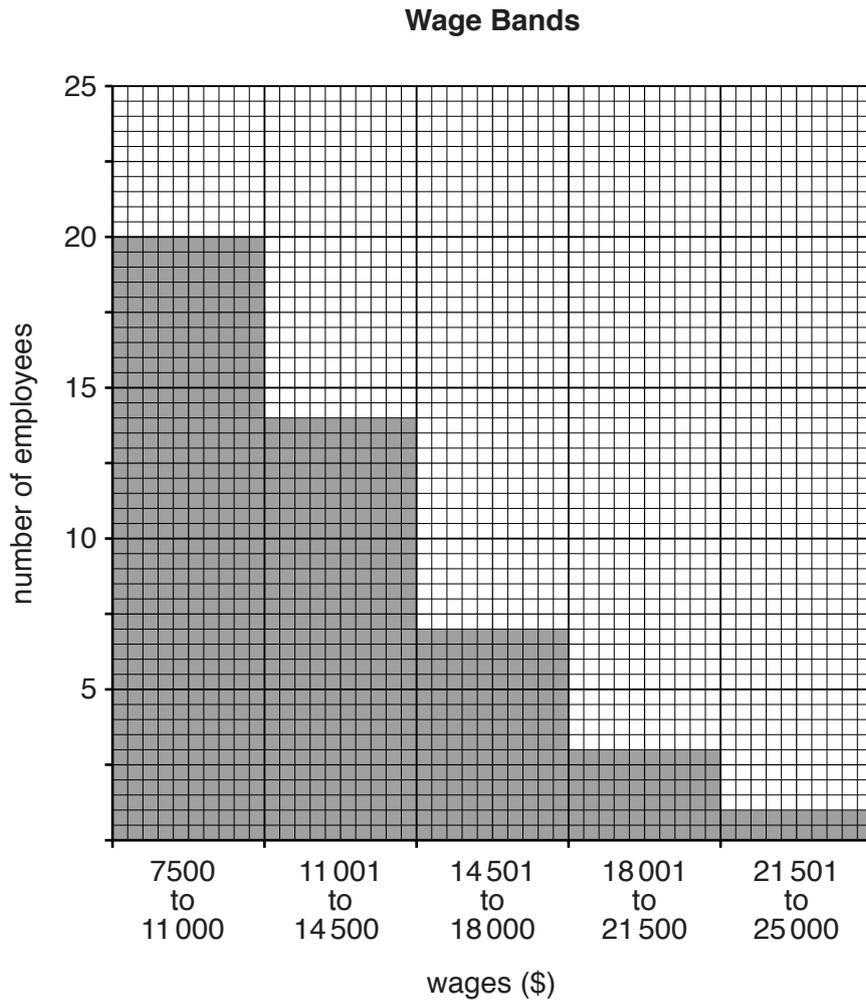
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- 3 (a) On an invoice price of £8640 a retailer is allowed a cash discount for prompt payment and so she only pays £8337.60 in total.

What percentage is the cash discount?

*Answer (a)* .....% [4]

(b) A wholesaler employs staff who are paid as shown in the bar chart below.



(i) What is the total number of employees?

*Answer (b)(i)* ..... [2]

(ii) In which wage band is the median pay?

*Answer (b)(ii)* ..... [2]

4 A coal merchant buys 4.7 tonnes of coal at £55.20 per tonne.  
He packs the coal into 25 kg bags which he sells for £7.52 per bag.

(a) How many 25 kg bags does he fill?

*Answer (a)* .....[3]

(b) How much profit does the merchant make on each bag he sells?

*Answer (b) £* .....[5]

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- 5 (a) A sales executive's total annual income is made up of a salary of \$33 000, plus commission on sales of  $6\frac{1}{4}\%$ .

For one year her total income was \$47 500.

What was the value of her sales?

*Answer (a)* \$ .....[4]

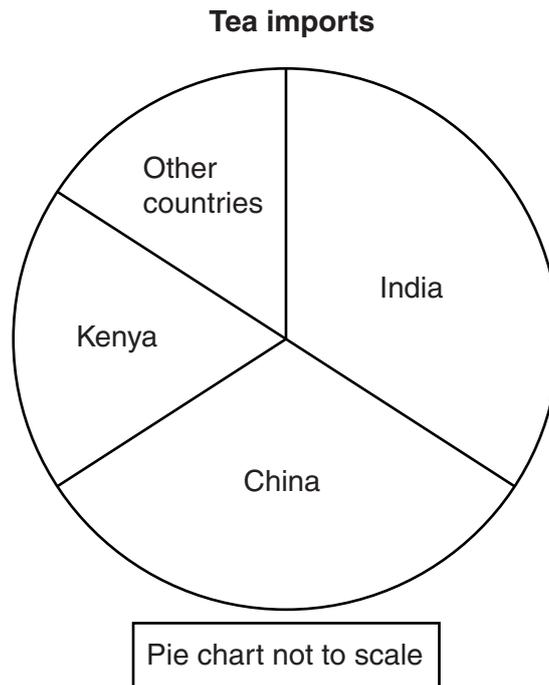
- (b) A company director owns 7780 company shares. The company declares a dividend, after tax, of 3.8 cents per share.

How much dividend will he receive? Give your answer in \$.

*Answer (b)* \$ .....[2]

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- 6 A tea importer obtains tea from a number of different countries as illustrated in the pie chart.



- (a) The pie chart angle for India is  $108^\circ$ .

Calculate what percentage of the imports was from India.

*Answer (a)* .....% [2]

- (b) The total amount of tea imported was 55 000 tonnes, of which 12 100 tonnes of tea were imported from Kenya.

What is the pie chart angle for Kenya?

*Answer (b)* ..... $^\circ$  [3]

- (c) Three types of tea were imported from China: green, black and white. These were in the ratio 5 : 3 : 2 respectively. 4400 tonnes of white tea were imported from China.

How many tonnes of green tea were imported from China?

*Answer (c)* ..... tonnes [3]

- (d) The importer insures some of his business risks.

Complete the following table of insurance costs.

Risk	Amount to be insured	Rate	Cost (\$)
Buildings	\$560 000	\$18 per \$10 000 value	
Machinery	\$30 000	2% of value	
Contents	\$20 000	$1\frac{1}{4}\%$ of value	
		Total	

[8]

7 Mr Aziz wishes to purchase a car priced at \$34 000. As he cannot afford the full cost immediately, the dealer offers him two payment options as follows:

Option A A loan of \$34 000 at  $3\frac{1}{4}\%$  simple interest for  $2\frac{1}{2}$  years

Option B A deposit of \$10 000 followed by monthly payments of \$950 for  $2\frac{1}{2}$  years.

(a) Which is the cheaper option, and by how much? You **must** show all your working.

*Answer (a)* .....[11]

(b) The car was bought for \$34 000 on 1 February 2014. Its value depreciated by 17% in a year.

What was its value on 1 February 2015?

*Answer (b)* \$ .....[4]

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8 (a) Train fares are increased annually in line with the Retail Price Index (RPI).

(i) In 2012 the RPI was 162 and in 2013 it was 175.  
If a fare was £63 in 2013, what was the fare in 2012?

*Answer (a)(i)* £ ..... [2]

(ii) A fare of £93.50 in 2013 increased to £100.98 in 2014.  
What was the RPI in 2014?

*Answer (a)(ii)* ..... [2]

(b) A train completed a 286 km journey at an average speed of 65 km/hr.  
If it arrived at 12:06, what was its departure time?

*Answer (b)* ..... [5]

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**Section B (24 Marks)**

Answer any **two** questions from this section.

- 9 (a) A coffee retailer buys bags of coffee weighing 5 kilograms each from a wholesaler for £18.60 per kilogram. She then packages the coffee, at a cost of 5 pence per packet, into 100 gram packets which she sells for £3.15 each.

Assuming no wastage, calculate her profit from each 5 kilogram bag of coffee.

*Answer (a) £* ..... [7]

- (b) The table below shows the opening hours of the retailer's shop.

Monday to Friday	Saturday	Sunday
0930 – 1700	0900 – 1300	Closed

The retailer has an assistant who works during shop opening hours from Monday to Friday. She pays the assistant £7.30 per hour.

What is the assistant's gross wage for one week?

*Answer (b) £* ..... [5]

10 The table shows the exchange rate between Canadian dollars and Euros during one week.

	Monday	Tuesday	Wednesday	Thursday	Friday
1 Canadian dollar =	0.750 Euros	0.734 Euros	0.720 Euros	0.713 Euros	0.725 Euros

(a) Calculate the mean exchange rate during the week.

*Answer (a)* ..... [3]

(b) A dealer bought 76500 Euros, using Canadian Dollars, on Monday and sold them on Wednesday.

Calculate her percentage profit. Give your answer correct to 3 significant figures.

*Answer (b)* .....% [9]

11 A road tanker company uses three sizes of tanker to transport bulk liquids: 20 000 litre, 30 000 litre and 40 000 litre. The table below shows some of the charges for using these tankers.

	Safe liquids	Dangerous liquids
Tanker capacity litres	Charge \$/km	Charge \$/km
20 000	4.20	4.41
30 000		
40 000		5.46

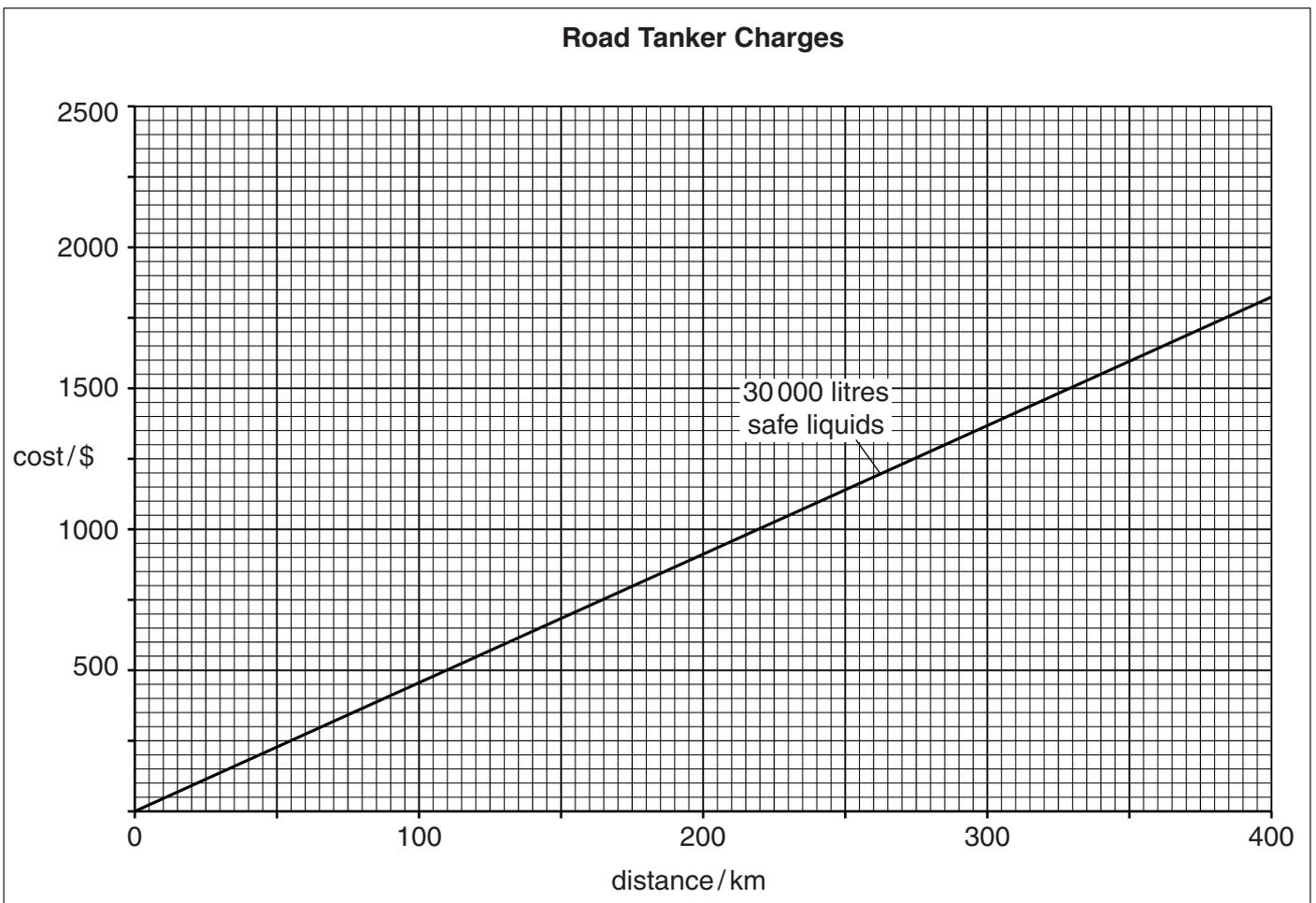


Fig. 1

(a) Use the graph in Fig. 1 to work out the charge for using the 30 000 litre tanker to transport safe liquids in \$/km.

Answer (a) ..... \$/km [3]

- (b) On the graph in Fig. 1, plot a line to show the charges for the 20 000 litre tanker for safe liquids. Your plotted line should extend from 0 to 400 km. [5]
- (c) Due to increased insurance costs, the charges for carrying dangerous liquids have to be higher. The percentage increase in insurance costs is the same for all sizes of tanker.

Calculate the charge, in \$/km, for transporting safe liquids in the 40 000 litre tanker.

*Answer (c)* ..... \$/km [4]

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**QUESTION 12 IS OVER THE PAGE**

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- 12 (a) The owner of an electronics company plans to spend \$80 000 to expand his business. The \$80 000 is to be shared between three projects: building, machinery and relocation in the ratio 9 : 5 : 2.

How much will be invested in machinery?

*Answer (a)* \$ .....[3]

- (b) In order to fund the business expansion the owner takes out a loan of \$80 000 at 4.5% compound interest over four years. The total repayment is to be made by equal monthly instalments over the four years.

Calculate the monthly repayments, giving your answer correct to the nearest cent.

*Answer (b)* \$ .....[8]

- (c) Last year the electronics company produced 1 500 000 light bulbs in five colours as shown in the table below.

Colour	White	Red	Blue	Green	Yellow
Quantity	500 000	300 000	100 000	400 000	200 000

Write down the mode.

*Answer (c)* .....[1]