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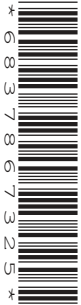
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**COMMERCIAL STUDIES**

**7101/21**

Paper 2 Arithmetic

**October/November 2017**

**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)**  $8.475 + 14.8 \div 3.2$

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

**(b)** 103.8% of \$860

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

**(c)**  $\frac{4}{5} - \frac{3}{8} \div \frac{9}{16}$

giving your answer as a fraction.

*Answer (c)* .....[2]**2 (a)** £9200 is saved in an account paying 2.7% simple interest per year.Calculate the **amount** in the account at the end of 3 years.*Answer (a) £* .....[4]

(b) A shopkeeper reduces the price of an item from £93.75 to £90.

Calculate the percentage decrease.

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

(c) In 2016 a trader's rent was £860 per week.

The rent increases annually in line with the Retail Price Index (RPI).

In 2016 the RPI was 172.

Calculate the RPI in 2017 if the rent increased to £920.

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

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- 3 (a) A manufacturer produces electronic components, each of which weighs 210 grams. These are packed into boxes. Each empty box weighs 400 grams.

100 components are packed into each box.  
1500 components are to be sent to a customer.

Calculate the total weight of the consignment. Give your answer in kilograms.

*Answer (a)* ..... kg [6]

- (b) Another consignment weighs 214 kilograms.  
A transport company charges 2 cents per kg for each 10 km that the goods need to be carried.

Calculate the total carriage charge, in dollars, to transport the consignment 320 km.

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

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- 4 (a) In 2015, a country had 1.33 million hectares of commercial woodland.

The species of tree were pine, eucalyptus and willow, which occurred in the ratio 10 : 6 : 3.

How many hectares were eucalyptus?

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

- (b) The commercial woodland was 4% of the country's total area of woodland.

Calculate the total area of woodland in the country.

*Answer (b)* ..... hectares [3]

- (c) In 2016 the area of commercial woodland increased by 3% from the 2015 value.

Calculate the area of commercial woodland in 2016.

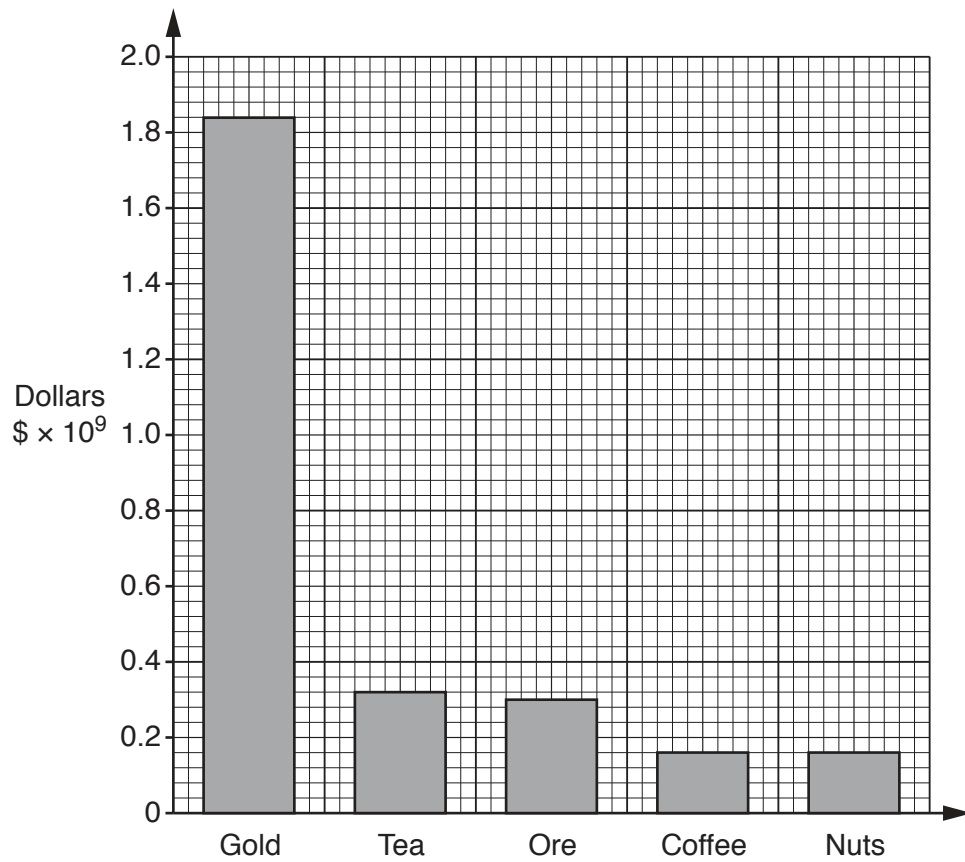
Give your answer to 3 significant figures.

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

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- 5 The bar chart below shows the value, in billions of dollars, of a country's 5 main exports during one year.

The total value of these exports is  $\$2.78 \times 10^9$ .



- (a) What percentage of this value is represented by tea?

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

(b) The data is to be shown as a pie chart.

Calculate the sector angle for gold. Give your answer to the nearest degree.

Answer (b) ..... ° [5]

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6 \$20 000 is deposited in an account paying 3.5% compound interest annually.

Calculate the **total interest** added to the account at the end of 4 years.

*Answer* \$ ..... [6]

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- 7 (a) A cruise ship travels 386.6 kilometres in  $12\frac{1}{2}$  hours.

Calculate its average speed in kilometres/hour.

*Answer (a)* .....km/hr [2]

- (b) A passenger joined the ship in Singapore with 3000 Singapore dollars (SGD).  
He spent 650 SGD during the voyage to Istanbul.  
In Istanbul he exchanged his remaining dollars into Turkish lira (TRY) at a rate of  
1 SGD = 2.04 TRY.

How many Turkish lira did he receive?

*Answer (b)* .....TRY [3]

- (c) On returning to Singapore he exchanged his remaining 1920 Turkish lira (TRY) for Singapore dollars (SGD) at a rate of 1 SGD = 2.048 TRY.

How many Singapore dollars did he receive?

*Answer (c)* .....SGD [2]

- 8 (a) An investor purchases 1300 shares in a company, from a broker, at a cost of \$1.20 per share. In addition the broker charges a fee of 1.5% of the purchase price. How much in total does the investor have to pay?

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

- (b) The investor later sells the shares. After paying the charges she received \$2160. Calculate her percentage profit. Give your answer to 2 decimal places.

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

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- 9 A wholesaler stocks 5 varieties of potatoes. These are sold in 25 kg sacks.

The table below shows the number of sacks of each variety he sold in one day, together with the price per sack.

Variety	King Edward	Estima	Desiree	Maris Piper	Red Rooster
Number of sacks sold	10	12	10	9	8
Price per sack (£)	27.50	20.00	18.75	32.50	22.50

- (a) Write down the modal variety.

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

- (b) Calculate the mean price of all the sacks of potatoes that the wholesaler sold that day. Give your answer, in pounds, correct to the nearest penny.

*Answer (b) £* ..... [6]

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**Section B (24 marks)**

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

- 10** Jo works in a factory. She is contracted to work 8 hours per day from Monday to Friday. Her basic rate of pay is \$18.40 per hour.

Jo often works extra hours (overtime) which are paid at  $1\frac{1}{2}$  times the basic rate.

The table below shows the times she worked during one week.

Day	Start Time	Finish Time	Hours worked	Daily earnings (\$)
Monday	07:30	18:00	<b>(a)</b>	216.20
Tuesday	07:30	16:00	$8\frac{1}{2}$	161.00
Wednesday	07:15	16:45	$9\frac{1}{2}$	<b>(e)</b>
Thursday	06:45	15:45	<b>(b)</b>	174.80
Friday	06:30	14:30	<b>(c)</b>	147.20
Saturday	09:00	13:30	$4\frac{1}{2}$	<b>(f)</b>
Sunday				
<b>TOTAL</b>			<b>(d)</b>	<b>(g)</b>

Work out the values in the table labelled **(a)** to **(g)**.

*Answer (a)* ..... hours [1]

*Answer (b)* ..... hours [1]

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

*Answer (d)* ..... hours [1]

*Answer (e)* \$ ..... [5]

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

*Answer (g)* \$ ..... [1]

- 11 (a) Adam, Tariq and Shasna set up an advertising and PR business as a partnership. They invest \$30 000, \$26 000 and \$32 000 respectively as start-up capital.

At the end of each year, tax at 17.5% has to be paid on the business profits after deduction of expenses.

20% of the remaining profit is retained in the business. The rest is paid as a salary to the partners in proportion to their investment.

At the end of 2016 the gross profit was \$150 000 and expenses were \$45 000.

Calculate Shasna's salary for the year.

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

- (b) In 2016 the partnership received the following fees from 6 clients:

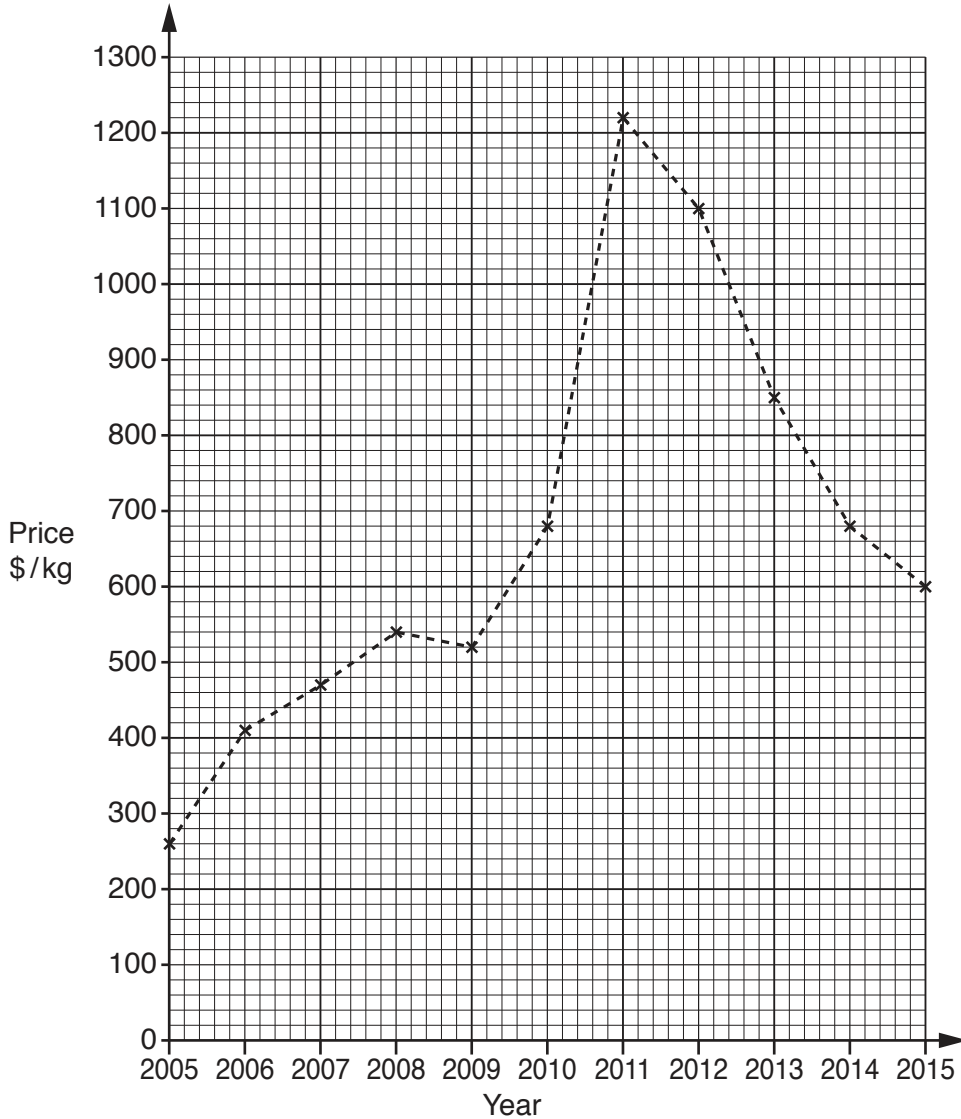
\$2500, \$1500, \$3200, \$1800, \$900, \$1200

What was the median fee received?

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

12 The graph below shows how the price of silver has fluctuated from 2005 to 2015. The price is shown in dollars per kilogram (\$/kg).

Use the graph to help you answer the following questions.



(a) What was the price of silver at the start of 2008?

Answer (a) \$ .....[1]

(b) In what year did the price of silver first reach \$700?

Answer (b) .....[1]

(c) Between which two years was the fall in the price of silver the smallest?

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

(d) At the start of 2014 the price of silver was \$680/kg

Calculate the price for 1 gram of silver in dollars at the start of 2014.

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

(e) The price per kilogram of silver at the start of 2005 was \$261.  
This was an 8.75% increase on the price at the start of 2004.

Calculate the price at the start of 2004.

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

(f) Calculate the range of the price of silver from the start of 2011 to the start of 2015.

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

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**13 (a)** Kasim is a sales representative. In 2015 he earned a total of \$48 000.

$\frac{2}{3}$  of this was annual salary;  $\frac{1}{3}$  was commission on sales.  
He earned 5% commission on the value of his sales.

Calculate the value of his sales.

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

**(b)** In 2016 Kasim's income of \$51 000 was taxed as shown in the table.

Income	Tax Rate
First \$11 000	Tax free
Next \$5 000	8%
Remaining	20%

Calculate how much tax Kasim had to pay in 2016.

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

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