



# Coimisiún na Scrúduithe Stáit State Examinations Commission

*Leaving Certificate Applied 2006*

## Mathematical Applications (200 marks)

**Friday, 9th JUNE**

**Morning 9.30 – 11.30**

### ***General Directions***

1. Write your EXAMINATION NUMBER in this space:
2. Write all answers in the boxes or spaces in this answerbook.
3. Show necessary work on right hand blank page opposite each question.
4. Calculators may be used.
5. Answers involving money should be given correct to the nearest cent, unless otherwise indicated.

**ATTEMPT QUESTION ONE AND THREE OTHER QUESTIONS.**

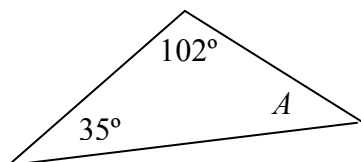
**ALL QUESTIONS CARRY EQUAL MARKS.**

<i>For the Superintendent only</i>	<i>For the Examiner only</i>	
<b><i>Centre Stamp</i></b>	1. Cumulative end-of-page total.	
	2. Aggregate total of all disallowed questions.	
	3. Total mark awarded (1 minus 2)	
	4. Bonus mark for answering through Irish (if applicable)	
	5. Total mark awarded if Irish Bonus. ( 3 + 4 )	
	Note: The mark in row 3 (or row 5 if an Irish bonus is awarded) must equal the mark in the <i>Grand Total</i> box on the inside flap.	

1. (a) Find 52% of €632.69.

(b) Paul's rate of pay is €12.60 per hour.  
Overtime is paid at 'time and a half'.  
How much will Paul get paid for 6 hours of overtime?

(c) Calculate the size of the angle marked  $A$  in the given triangle.



(d) Miriam is making an orange drink.  
She uses 4 parts water to 1 part orange squash.  
She wants to make 1500 ml of the drink.  
How much squash should she use?

(e) Calculate  $(4.619)^3$ , correct to 2 decimal places.

(f) Given an exchange rate of €1 = £0.69 sterling,  
convert £250 to euro.

(g) A letter is chosen at random from the word  
PYTHAGORAS.  
What is the probability that the letter chosen is A?

(h) The length of a side of a square is 6.8 m.  
Calculate the perimeter of the square.

(i) Anna has a gross salary of €560 per week.  
Her deductions amount to €145.60.  
What percentage of her gross salary is this?

(j) A train leaves Limerick Junction at 14:41 and arrives in  
Mallow at 15:16. How long does the journey take?

**You may use this page to show any necessary work for Question 1**

**2. Research Element Question on Enterprise.**

The final accounts for a mini-company are shown below.

<b>Final Accounts of THE OLD SCHOOLHOUSE POSTCARD COMPANY on 31 May 2006</b>			
<b>SHARES SUMMARY</b>	Number of shares issued	Income	Expenditure
EACH STUDENT GETS 14 FREE SHARES	112	€0·00	
EACH STUDENT BUYS A FURTHER 6 SHARES AT A REDUCED PRICE OF 10 CENT EACH	<input type="text"/>	€4·80	
EACH STUDENT SELLS 5 FURTHER SHARES AT THE FULL PRICE OF 20 CENT EACH	40	€8·00	
<b>TOTAL SHARES ISSUED</b>	<b>200</b>	<b>€12·60</b>	
<u>Purchases</u>			
1050 BLANK POSTCARDS @ 2 cent each			€21·00
INK FOR PRINTER			€21·60
<b>TOTAL PURCHASES</b>			<b>€42·60</b>
<u>Sales</u>			
1000 CARDS SOLD AT 15 CENT EACH		<input type="text"/>	
REVENUE FROM ADVERTISING		€40·00	
<b>TOTAL SALES</b>		<b>€190·00</b>	
<b>GRAND TOTALS ON 31 MAY 2006</b>		<input type="text"/>	<b>€42·60</b>

(a) Fill in the three missing details on the Final Accounts above.

(b) Calculate the total profit of the company on 31 May 2006, (the final date).

(c) Calculate the Final Share Value of the company.

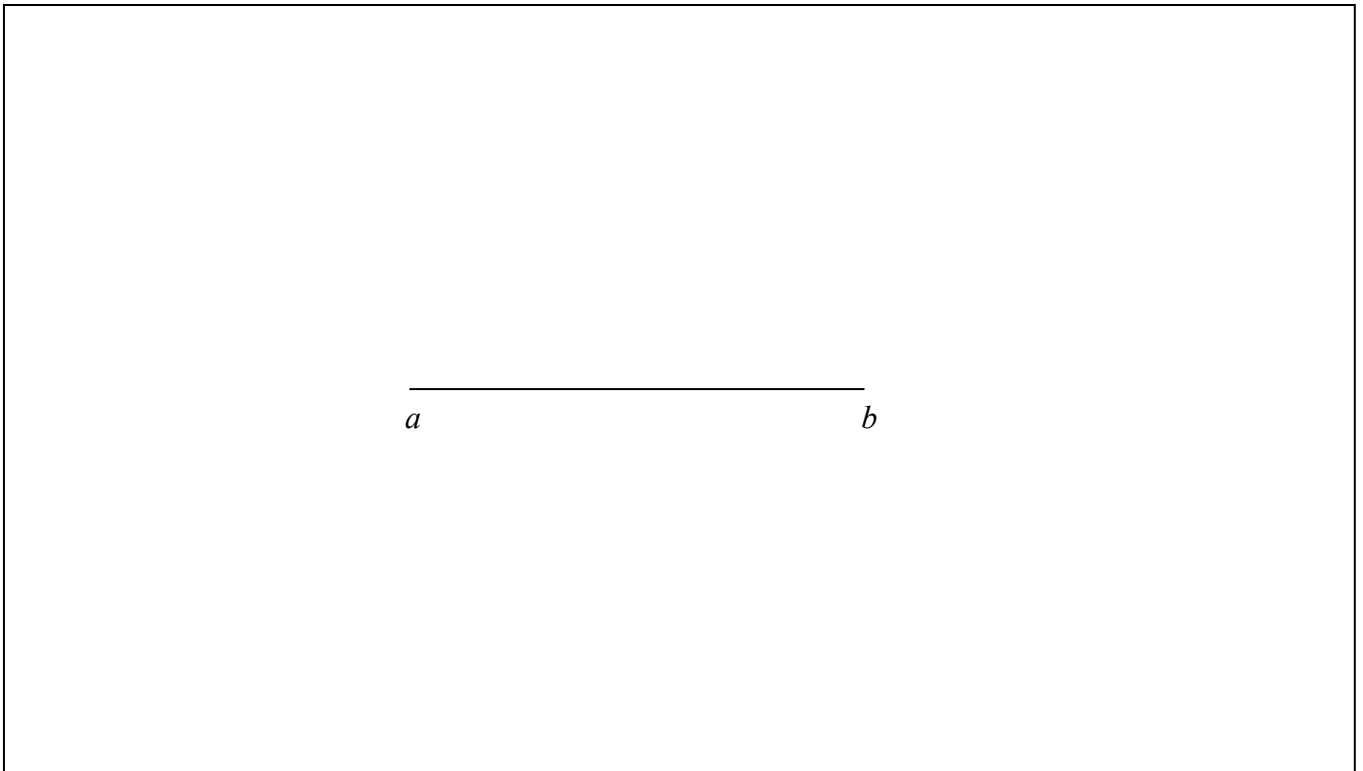
$$\text{Final Share Value} = \frac{\text{Total profit}}{\text{Total number of shares issued}}$$

(d) A teacher bought five shares in the company. Calculate the profit the teacher made.

(e) A carpenter prices a job: labour costs €495; materials cost €278; VAT is charged at 21%. Calculate the total cost of the job.

**You may use this page to show any necessary work for Question 2**

3. (a) In the box below is a line segment  $[ab]$ .  
Mark the midpoint of this line segment and label the midpoint  $m$ .



- (b) In the box above construct a circle with  $m$  as the centre and with  $[ab]$  as the diameter.

- (c) Write down the length of the radius of the circle.

Radius =

- (d) Calculate the length of the circle, taking  $\pi = 3.14$ .

Length =  $2\pi r$

- (e) Divide the circle into six equal parts.
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- (f) Jason has a gross weekly income of €400.  
His tax rate is 20%.  
His tax credits are €48 per week.  
How much tax does Jason pay per week?

**You may use this page to show any necessary work for Question 3**

4. John needs to buy some bark chips for his garden. The two local stores, *Greene's* and *Pacific*, have special offers on bags of bark chips. The offers are:

**Special**  
**3 bags**  
**for the**  
**price of**  
**2 bags**

**GREENE'S Bark Chips**  
 100 Litre Bag: €7.99



**PACIFIC**  
 75 Litre Bag of Bark Chips  
 only €6.79



**BUY 1 Get 1 FREE**

- (a) Calculate the price per litre on the purchase of **one bag** of bark chips from each store.

GREENE'S.....

PACIFIC.....

- (b) Which store offers the best value per litre on the purchase of 300 litres of bark chips?

- (c) John wants to spread bark chips on a rectangular section of the garden. This section measures 4 m × 5 m. He needs 30 litres of bark chips per square metre. How many litres does he need in total?

- (d) How much will John's bark chips cost in the cheaper store?



**You may use this page to show any necessary work for Question 4**

5. A timetable for the bus from Cork to Dublin is shown. Use the timetable to answer the questions below.

MONDAY TO SUNDAY							
Cork	dep.	0800	1000	1200	1400	1600	1800
Fermoy		0835	1035	1235	1435	1635	1835
Mitchelstown		0850	1050	1250	1450	1650	1850
Kilbehenny		R	R	R	R	R	R
Glengarra		R	R	R	R	R	R
Cahir		0920	1120	1320	1520	1720	1920
Cashel		0935	1135	1335	1535	1735	1935
Horse/Jockey	↓	R	R	R	R	R	R
Urlingford	arr.	1005	1205	1405	1605	1805	1905
Urlingford	dep.	1020	1220	1420	1620	1820	2020
Johnstown		R	R	R	R	R	R
Durrow		1035	1235	1435	1635	1835	2035
Abbeyleix	↓	1045	1245	1445	1645	1845	2045
Portlaoise	arr.	1055	1255	1455	1655	1855	2055
Portlaoise	dep.	1130	1330	1530	1730	1930	2130
Monasterevin	arr.	1150	1350	1550	1750	1950	2150
Kildare	arr.	1200	1400	1600	1800	2000	2200
Newlands Cross	dep.	D	D	D	D	D	D
Dublin	arr.	1225	1425	1625	1825	2025	2225

R = Request stop,      D = Drop off only.

(a) What is the time of the latest bus from Mitchelstown to Dublin?

(b) Emma lives in Cashel and she needs to be in Dublin for 2:00 pm. At what time should she get the bus?

(c) How many hours and minutes does it take the bus to get from Cashel to Dublin?

(d) For how long does the bus stop at Portlaoise?

(e) A salesperson working for a paint company travelled 3082 km by car in a month. The car used 1 litre of petrol for every 11.5 km travelled. How many litres of petrol did the car use in the month?

(f) The cost of petrol that month was 102.9 cent per litre. Calculate the cost of petrol for the month.

**You may use this page to show any necessary work for Question 5**

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*For the examiner only*

Question	Mark
1	
2	
3	
4	
5	
Total	
Irish Bonus	
Grand Total	