OXFORD CAMBRIDGE AND RSA EXAMINATIONS

GCSE

B711/02/DB

GATEWAY SCIENCE
SCIENCE B
Science modules B1, C1, P1
(Higher Tier)

DATA BOOKLET

THURSDAY 24 JANUARY 2013: Morning

DURATION: 1 hour 15 minutes
plus your additional time allowance

MODIFIED ENLARGED 24pt

Candidate forename		Candidate surname	

Centre number						Candidate number				

READ INSTRUCTIONS OVERLEAF

DC (SJF) 1597353559 71563/2

INSTRUCTIONS TO CANDIDATES

- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Answer ALL the questions.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).**

INFORMATION FOR CANDIDATES

- **Your quality of written communication is assessed in questions marked with a pencil ( ).**
- **An enlarged copy of the Periodic Table is inserted.**
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **The total number of marks for this paper is 75.**

EQUATIONS

$$\text{energy} = \text{mass} \times \text{specific heat capacity} \times \text{temperature change}$$

$$\text{energy} = \text{mass} \times \text{specific latent heat}$$

$$\text{efficiency} = \frac{\text{useful energy output } (\times 100\%)}{\text{total energy input}}$$

$$\text{wave speed} = \text{frequency} \times \text{wavelength}$$

$$\text{power} = \text{voltage} \times \text{current}$$

$$\text{energy supplied} = \text{power} \times \text{time}$$

$$\text{average speed} = \frac{\text{distance}}{\text{time}}$$

$$\text{distance} = \text{average speed} \times \text{time}$$

$$s = \frac{(u + v)}{2} \times t$$

$$\text{acceleration} = \frac{\text{change in speed}}{\text{time taken}}$$

$$\text{force} = \text{mass} \times \text{acceleration}$$

$$\text{weight} = \text{mass} \times \text{gravitational field strength}$$

$$\text{work done} = \text{force} \times \text{distance}$$

$$\text{power} = \frac{\text{work done}}{\text{time}}$$

$$\text{power} = \text{force} \times \text{speed}$$

$$\text{KE} = \frac{1}{2}mv^2$$

$$\text{momentum} = \text{mass} \times \text{velocity}$$

$$\text{force} = \frac{\text{change in momentum}}{\text{time}}$$

$$\text{GPE} = mgh$$

$$mgh = \frac{1}{2}mv^2$$

$$\text{resistance} = \frac{\text{voltage}}{\text{current}}$$

For use with Question 2 (a)

Name	Sex	Age in years	Time taken to react in seconds					
			Attempt 1	Attempt 2	Attempt 3	Attempt 4	Attempt 5	Mean
Colin	male	16	0.28	0.34	0.33	0.33	0.40	0.34
Diane	female	55	0.39	0.45	0.44	0.40	1.43	0.62
Ewan	male	14	0.31	0.28	0.24	0.30	0.33	0.29
Freda	female	72	0.53	0.48	0.54	0.48	0.53	0.51
Tom	male	12	0.26	0.29	0.30	0.30	0.27	0.28

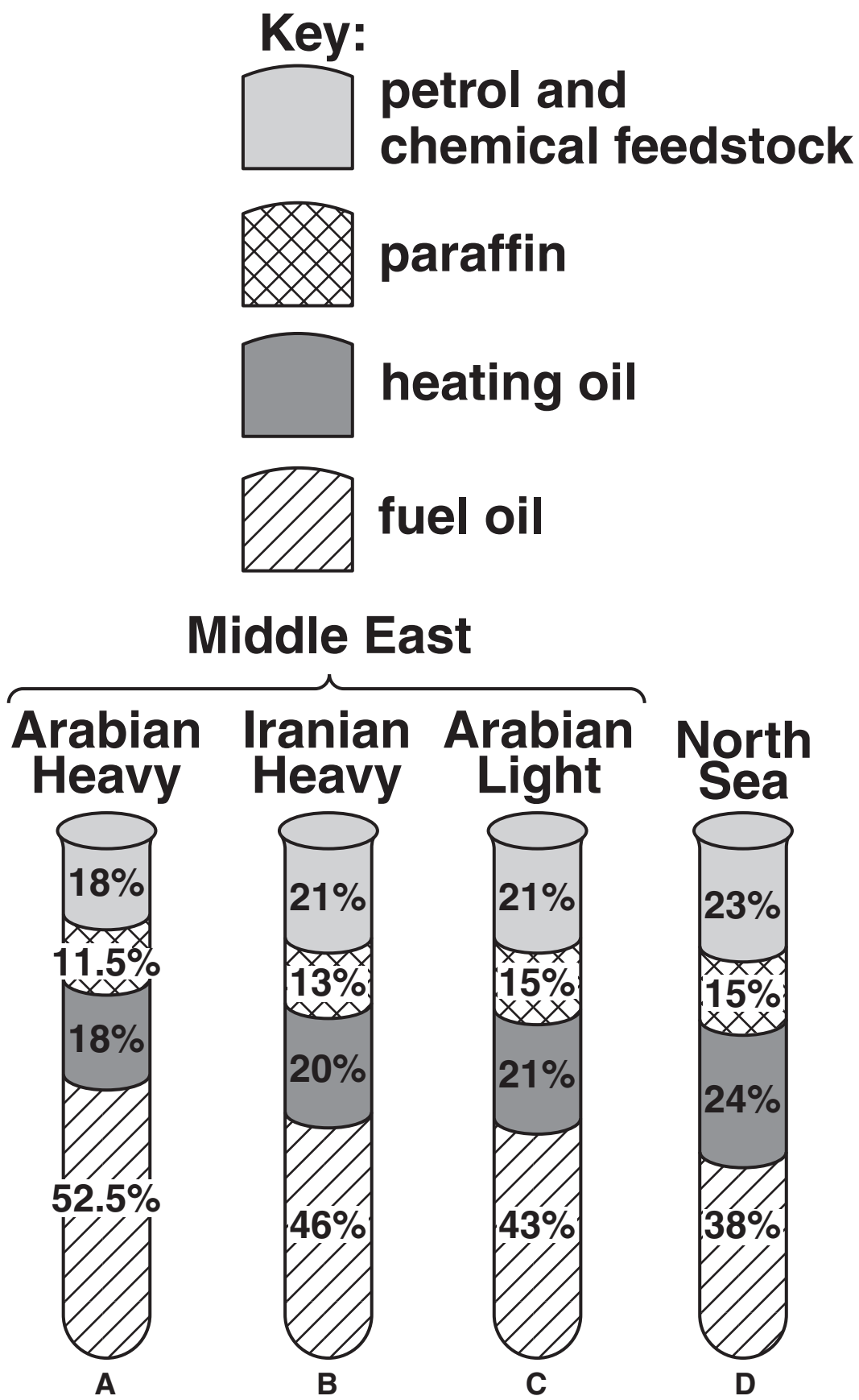
For use with Question 4 (a)

Disease	Type of pathogen that causes the disease	How the pathogen gets into body	Some countries where the disease occurs
diphtheria	bacteria	through the nose	Brazil South Africa India
malaria	protozoa	by the mosquito acting as a vector	China Kenya Gambia
cholera	bacteria	drinking contaminated water	Kenya India Vietnam
typhoid	bacteria	drinking contaminated water	Kenya India Vietnam
yellow fever	virus	by the mosquito acting as a vector	Brazil Kenya Gambia

For use with Question 5 (a)

Pigment	Colour	Effect of increasing the temperature	Effect of light	Type of paint made
A	blue	no change	no change	oil based
B	yellow	no change	colour fades	emulsion
C	red	changes to yellow	colour fades	oil based
D	green	colour fades	absorbs light and later gives off light	emulsion

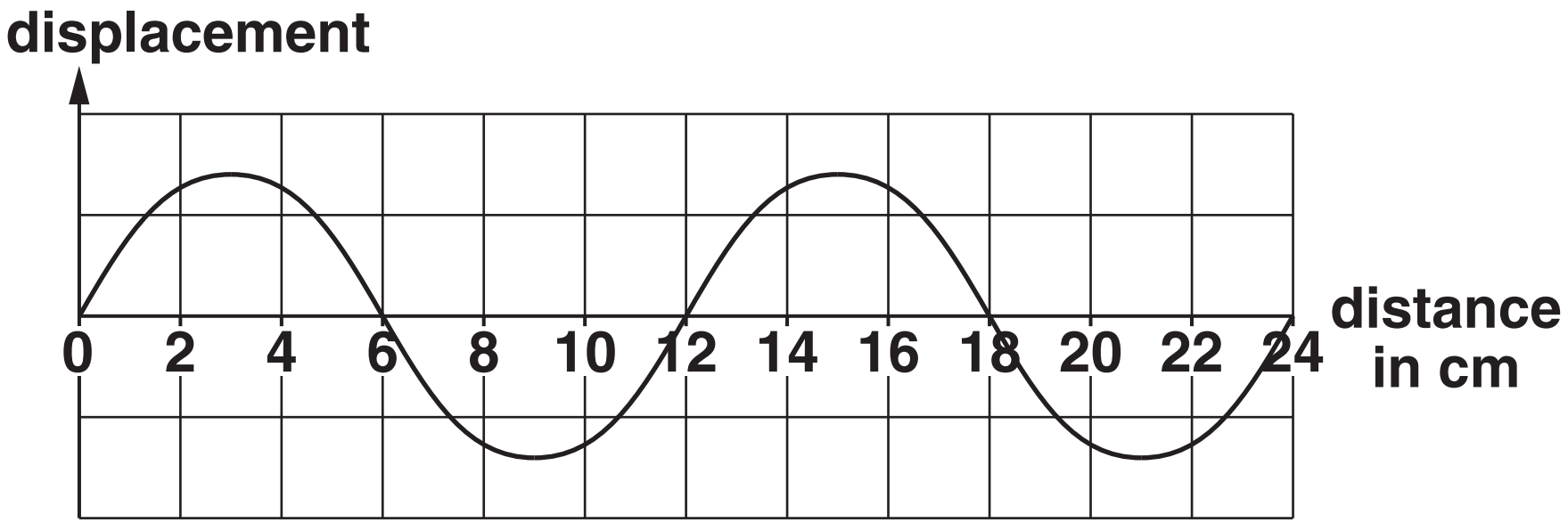
For use with Question 6



For use with Question 8 (a)

Pollutant gas	Solubility in water	pH of solution	Effect on marble statues	Effect on steel	Effect on humans
A	very soluble	8	none	none	none
B	insoluble	not applicable	none	none	poisonous
C	very soluble	3	reacts slowly	increases rusting	causes coughing
D	very soluble	4	reacts slowly	increases rusting	causes coughing and photochemical smog

For use with Question 9 (b)



1597353559