The UK Linguistics Olympiad 2019

Round 1

Problem 10. Going dotty about Braille = ⠠⠃ ⠠⠗⠁⠊⠇⠇⠑ ⠊⠎ ⠋⠥⠝ (25 marks)

Braille is a tactile writing system, consisting of raised dots, used by visually impaired people. A Braille character consists of a combination of raised dots arranged in two columns of three rows, as in the example on the right (where the lighter dots are mere place holders for potential raised dots).

While it is possible to write a Braille character for every letter and punctuation sign, this makes Braille texts cumbersomely large and slow to read. Braille users have designed an advanced Braille code (called 'Grade 2') for individual languages to create shorter forms. Grade 2 Braille codes usually have one Braille symbol substituting for two or more letters, often showing combinations that are very frequent in that particular language (for example, Spanish Grade 2 Braille has one symbol to stand in for "ll", which is a common letter combination in Spanish). The title of the problem is written in Grade 2 English Braille, as are all the Braille texts below.

Moreover, because only 62 distinct Braille symbols are possible, most symbols are "recycled" and can be used to represent mathematical symbols or musical notation if needed. Usually, if a text changes from Braille-as-letters to Braille-as-mathematical symbols, this is indicated, so that a Braille reader knows how to read the symbols.

Below are some more examples of Roman-Braille pairs, as well as some where one of the pair is missing. The challenge for you is to use your answer sheet to fill in the blanks 5 and 7-13 as required, including punctuation signs. For Braille transcriptions,

- write them from left to write using one box per Braille character and as many rows as necessary.
- leave a blank box between words.
- let each cell define the two columns and three rows; for example, to write a single dot in the first row and first column you write it in the top left corner of the cell. The markers will not accept unclear or ambiguous dots.

1	New York is the most populous city in the United States.
	(Braille text)

2	Toronto is the largest city in Canada.
	(Braille text)

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3	Ottawa is not no. 3 after Calgary and Montreal.
	⠃⠗⠁⠊⠇⠇⠑
4	Sydney has 4 million people.
	⠃⠗⠁⠊⠇⠇⠑
5	[blank]
	⠃⠗⠁⠊⠇⠇⠑
6	It is not as large as Mexico City.
	⠃⠗⠁⠊⠇⠇⠑
7	a b c is as easy as 1 2 3
	[blank]
8	[blank]
	⠃⠗⠁⠊⠇⠇⠑
9	[blank]
	⠃⠗⠁⠊⠇⠇⠑
10	London is a great place.
	[blank]
11	Great Britain has 3 capital cities
	[blank]
12	and the UK has 4.
	[blank]
13	So many people in a city.
	[blank]

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Solution and marking.

Scoring   (max 114)

- 5: 1 point for each correct word. No half marks. (max 5)
- 7: 1 for each correct Braille character, plus 1 for all correct empty cells in between. (max 17)
  - Score only 1 for a string that could have been replaced by a single character, e.g. <ea>, <people>. The answers given here are the minimum, but expanded versions are also possible.
  - No extra penalties for omitted letters.
  - The alphabetical correspondences shown below the Braille character are just to help you, and not expected from the competitors.
- 8: as for #5 (max 6)
- 9: as for #5 (max 6)
- 10: as for #7 (max 21)
- 11: as for #7 (max 31)
- 12: as for #7 (max 13)
- 13: as for #7 (max 15)

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5	Canberra is not in Canada.

7	a	b	c		i	s		as		ea	s	y		as			1			2
		3																		

8	It is the best in Belfast.

9	Dublin is the capital in Ireland. (Don't accept *of*.)

10		L	o	n	d	o	n		i	s		a		g	r	ea	t		p	l
	a	c	e	.																

11		G	r	ea	t			B	r	i	t	a	i	n		h	a	s	
	3		c	a	p	i	t	a	l		c	it	i	e	s				

12	and d		the e			U		K		h	a	s		4	.			

13		S	o		m	a	n	y		pe op le		in		a		c	it	y	.

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Commentary

Braille Code: symbols for letters

a	f	k	p	u
b	g	l	q	v
c	h	m	r	w
d	i	n	s	x
e	j	o	t	y
				z

Punctuation symbols

- marks capital letter (the next Braille symbol should be read as Upper Case)

full stop

Grade 2 Braille symbols in this text

Here is a sample of the grade 2 symbols, with one Braille character for two or more letters or even for a whole short word.

the	(mo)st	(popul)ou(s)	(c)it(y)	in	(Unit)ed	St(ates)	
not	[number]	(a)fter	and	people	it	as	(l)ar(ge)