

The following table gives the number of respondents who obtained each score.

<i>score</i>	10	9	8	7	6	5	4
<i>number</i>	3	7	2	3	2	1	1

The numbers in parentheses below show the number of people who missed each question.

Only 19 out of 41 took the quiz. Very discouraging :(

Say whether the following sets are (a) regular, (b) context-free but not regular, or (c) not context-free.

1.  $\{x \in \{a, b, c\}^* \mid \#a(x) = \#b(x) = \#c(x)\}$  **not context-free** (5)
2.  $\{a^j \mid j \text{ is a power of } 2\}$  **not context-free** (4)
3.  $\{x \in \{0, 1\}^* \mid x \text{ represents a power of } 2 \text{ in binary}\}$  **regular** (1)
4.  $L(a^*b^*c^*)$  **regular** (0)
5. the set of all balanced strings of parentheses of three types  $() [] \{\}$  **context-free but not regular** (8)
6.  $\{a^n b^m \mid n \neq m\}$  **context-free but not regular** (4)
7.  $\{a^n b^m c^k d^\ell \mid 2n = 3k \text{ or } 5m = 7\ell\}$  **context-free but not regular** (8)
8.  $\{a^n b^m c^k d^\ell \mid 2n = 3k \text{ and } 5m = 7\ell\}$  **not context-free** (2)
9.  $\{a^n b^m c^k d^\ell \mid 2n = 3m \text{ and } 5k = 7\ell\}$  **context-free but not regular** (2)
10.  $\{a^n b^m c^k d^\ell \mid 2n = 3\ell \text{ and } 5k = 7m\}$  **context-free but not regular** (5)