

## Example Questions

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### 1 Mathematical Preliminaries

**Question 1.1.** Talking about computational processes and tasks, one can say that:

- A. Every task can be solved by exactly *one* process.
- B. Every task can be solved by *infinitely many* processes.
- C. Tasks can be solved by either *zero* or *many* processes.
- D. There is no task which can be solved by more than one processes.

**Question 1.2.** Which among the following ones is definitely *not* an acceptable encoding of the natural numbers?

- A. Every natural number  $n$  is encoding as a binary string of logarithmic length (e.g. 1 is encoded as 1 and 5 is encoded as 101).
- B. Every natural number  $n$  is encoded as the binary string  $1^n$  (i.e. 1 repeated  $n$  times).
- C. Every natural number  $n$  is encoded as the binary string  $1^{\lfloor n/2 \rfloor}$ .
- D. Every natural number  $n$  is encoded as the binary string  $010 \cdot s$ , where  $s$  is the encoding of  $n$  as for point 1

### Solutions to Selected Questions

**Question 1.1.** The correct answer is 3, because tasks can of course be unsolvable (and in this case there are no processes solving them), but as soon as a task is solvable and thus there is *one* process solving it, that same process can be modified in many different ways.  $\square$