

## Course outline

How does an NPTEL online course work?

### Week 0

### Week 1

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# Assignment 1

The due date for submitting this assignment has passed.

**Due on 2021-02-03, 23:59 IST.**

As per our records you have not submitted this assignment.

1) Consider a language  $L = \{a^p | p \text{ is prime}\} \subseteq \{a\}^*$  for some symbol  $a$ . Which of the following option is true for  $L$ . 1 point

- L is regular but not context-free language.
- L is context-free but not regular.
- L is neither regular nor context-free but accepted by a Turing machine.
- None of the above.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*L is neither regular nor context-free but accepted by a Turing machine.*

2) For complexity classes P, NP, L and PSPACE which of the following inclusions is correct ? 1 point

- $L \subseteq P \subseteq NP \subseteq PSPACE$
- $L \subseteq P \subseteq PSPACE \subseteq NP$
- $L \subseteq PSPACE \subseteq P \subseteq NP$
- None of the above.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

$L \subseteq P \subseteq NP \subseteq PSPACE$

3) If we consider a non-zero polynomial  $f$  of degree 3 over a field  $F$  and a set  $S$  where  $S \subseteq F$  and  $|S|=5$ , then what is the probability that  $f(a) \neq 0$  for  $a \in S$ ? 1 point

- At least 0.6
- At most 0.4
- At least 0.4
- At most 0.6

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*At least 0.4*

4) What is the maximum number of monomials present in a 4 variate with degree 3 polynomial? 1 point

- 64
- 35
- 81
- 24

No, the answer is incorrect.  
Score: 0

Accepted Answers:

**35**

5) Assuming PIT is in P then which of the following statement is necessarily true? 1 point

- $P = \text{coRP}$
- $\text{coRP} \subseteq P$
- $P = \text{BPPP}$
- None of the above.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*None of the above.*