Assignment 1

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

1) Consider a language \( L = \{a^p \mid p \text{ is prime}\} \subseteq \{a\}^* \) for some symbol \( a \). Which of the following options is true for \( L \).
   - [ ] \( L \) 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?
   - [ ] \( L \subseteq P \subseteq NP \subseteq PSPACE \)
   - [ ] \( L \subseteq P \subseteq PSPACE \subseteq NP \)
   - [ ] \( L \subseteq PSPACE \subseteq P \subseteq NP \)
   - [ ] 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 \( S \subseteq F \) where \( |S|=5 \), then what is the probability that \( f(\omega) \neq 0 \) for \( \omega \in S \)?
   - [ ] 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?
   - [ ] 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?
   - [ ] \( P = \text{coRP} \)
   - [ ] \( \text{coRP} \subseteq P \)
   - [ ] \( P = \text{BPPP} \)
   - [ ] None of the above.

No, the answer is incorrect.
Score: 0
Accepted Answers:

None of the above.