

## Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

● Lecture 16: Undirected Path in logspace

● Lecture 17: Explicit Prg to derandomizing classes

○ Quiz : Assignment 8

● Assignment 8 Solution

● Feedback for Week 8

Week 9

Week 10

Week 11

Week 12

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# Assignment 8

The due date for submitting this assignment has passed.

**Due on 2021-03-17, 23:59 IST.**

As per our records you have not submitted this assignment.

1) If there exists explicit  $2^{\epsilon \ell}$ -prg for some constant  $\epsilon > 0$ , then which of the following inclusions is known to be true? 1 point

- BPP = P/poly  
 P=NP  
 BPP= PSPACE  
 BPP=P

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
BPP=P

2) What is the probability P such that a random function  $C : \{1, 2, 3\} \rightarrow \{1, 2, 3, 4\}$  is one-to-one? 1 point

- 3/4  
 5/8  
 3/8  
 1/4

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
3/8

3) For complexity classes P, BPP, PSPACE and RP, which of the following inclusions is correct? 1 point

- $RP \subseteq P \subseteq BPP \subseteq PSPACE$   
  $P \subseteq RP \subseteq BPP \subseteq PSPACE$   
  $RP \subseteq P \subseteq PSPACE \subseteq BPP$   
 None of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $P \subseteq RP \subseteq BPP \subseteq PSPACE$

4) Standard counting argument shows that worst-case hardness of a random function f, for  $f : \{0, 1, 2\}^n \rightarrow \{0, 1, 2\}^n$  is 1 point

- exp(n)  
 poly(n)  
 log (n)  
 No such lower bound is known

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
exp(n)