

## Unit 7 - Week 5

Course outline
How does an NPTEL online course work?
Week 0
Week 1
Week 2
Week 3
Week 4
Week 5 <ul style="list-style-type: none"> <li>● Lecture 21 : Wilson's theorem</li> <li>● Lecture 22 : Roots of polynomials over <math>\mathbb{Z}_p</math></li> <li>● Lecture 23 : Euler <math>\varphi</math>-function - I</li> <li>● Lecture 24 : Euler <math>\varphi</math>-function - II</li> <li>○ Lecture 25 : Primitive roots - I</li> <li>○ Quiz : Assignment 5</li> <li>○ Assignment-5 Solutions</li> <li>○ Assignment-5 Detailed Solutions</li> <li>○ Weekly Feedback</li> <li>○ Download Videos</li> </ul>
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Live Session

## Assignment 5

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2020-10-21, 23:59 IST.**

Please note that multiple options may be correct.

1) Which of the following numbers satisfy  $(n-1)! \equiv 0 \pmod{n}$ ?

1 point

- 127,  
 137,  
 157,  
 167,  
 187,  
 197.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
187,

2) Which of the following numbers satisfy  $(n-1)! \equiv -1 \pmod{n}$ ?

1 point

- 223,  
 233,  
 253,  
 263,  
 283,  
 293.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
223,  
233,  
263,  
283,  
293.

3) How many  $n > 1$  have the property that  $(n-1)! \not\equiv 0 \pmod{n}$  and that  $(n-1)! \not\equiv -1 \pmod{n}$ ?

1 point

- 0,  
 1,  
 2,  
 3,  
 4,  
 5.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
1,

4) The number of roots of  $X^3 - 1$  in  $\mathbb{Z}_{41}$  is

1 point

- 0,  
 1,  
 2,  
 3,  
 4,  
 5.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
3,

5) The number of roots of  $X^9 - 1$  in  $\mathbb{Z}_{41}$  is

1 point

- 0,  
 1,  
 2,  
 3,  
 4,  
 5.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
5,

6) The number of roots of  $X^8 - 1$  in  $\mathbb{Z}_{44}$  is

1 point

- 0,  
 1,  
 2,  
 4,  
 8,  
 16.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
8,

7) Compute the value  $\varphi(720)$ .

1 point

- 172,  
 182,  
 192,  
 202,  
 212,  
 222.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
192,

8) Compute the value  $\varphi(2560)$ .

1 point

- 64,  
 128,  
 256,  
 512,  
 1024,  
 2048.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
1024,

9) Find the numbers  $n$  from the given choices such that  $\varphi(n) = 24$ .

1 point

- 52,  
 54,  
 72,  
 78,  
 84,  
 90.

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
52,  
72,  
78,  
84,  
90.

10) Find the correct statements from the given choices:

1 point

- If  $m \geq n$  then  $\varphi(m) \geq \varphi(n)$ .  
  
 If  $\varphi(m) = \varphi(n)$  then  $m = n$ .  
  
 If  $m \mid n$  then  $\varphi(m) \mid \varphi(n)$ .  
  
 If  $n \geq 3$  then  $2 \mid \varphi(n)$ .

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
If  $m \mid n$  then  $\varphi(m) \mid \varphi(n)$ .  
If  $n \geq 3$  then  $2 \mid \varphi(n)$ .