

## Unit 6 - Week 4

### Course outline

How does an NPTEL online course work?

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Week 4

Ultrasonic testing - 1

Ultrasonic testing - 2

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Quiz : Week 4 Practice Assessment

Quiz : Assignment 4

Week 4 Feedback : Theory and Practice of Non Destructive Testing

Week 5

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## Assignment 4

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

**Due on 2020-02-26, 23:59 IST.**

1) The generally used frequency range for ultrasonic testing is:

1 point

- 20 Hz – 10 kHz
- 20 kHz – 10 MHz
- 20 MHz – 10 GHz
- 20 GHz – 10 THz

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
20 kHz – 10 MHz

2) Which one of the following statements is True?

1 point

- Wave and particles moves in same direction in Longitudinal sound waves
- Particles don't move in Transverse sound waves
- Wave and particles moves in same direction in Transverse sound waves
- Wave and particles moves normal to each other in Longitudinal sound waves

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Wave and particles moves in same direction in Longitudinal sound waves

3) In a medium, velocity of longitudinal waves is more than transverse waves:

1 point

- False
- True

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
True

4) Acoustic impedance is:

1 point

- Directly proportional to the velocity of medium particles
- Inversely proportional to the sound pressure
- Inversely proportional to the velocity of medium particles
- Not dependent on sound pressure and medium particles' velocity

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Inversely proportional to the velocity of medium particles

5) During ultrasonic testing, the use of couplant is not required for:

1 point

- Quartz transducer
- PZT transducer
- Electromagnetic acoustic transducer
- None of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Electromagnetic acoustic transducer

6) If  $\lambda$  of sound waves is much greater than diameter of transducer, then mainly:

1 point

- Surface waves will appear
- Longitudinal waves will appear
- Transverse waves will appear
- All of these waves will appear

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
All of these waves will appear

7) Due to near-field fluctuations, ultrasonic testing cannot detect:

1 point

- The defects lying very deep in the sample
- The defects lying close to the sample surface
- Any defect in a sample
- The back wall signal

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
The defects lying close to the sample surface

8) PZT is preferred over quartz because of:

1 point

- Larger  $\beta$  value
- Smaller  $\alpha$  value
- Better dampening behavior
- All of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Better dampening behavior

9) Extensional ultrasonic waves belongs to:

1 point

- Love waves
- Symmetric Lamb waves
- Rayleigh waves
- Asymmetric Lamb waves

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Symmetric Lamb waves

10) All other things being the same, if the density of a medium is doubled, the sound velocity in it will:

1 point

- Also be doubled
- Remain the same
- Become half
- Decrease by a factor of  $1/\sqrt{2}$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Decrease by a factor of  $1/\sqrt{2}$