Assignment 4

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

1. Does a gap between a porous material and a hard barrier affect the sound absorption through the material? (1 point)
   - Increase low frequency absorption
   - Decrease low frequency absorption
   - Unaffected
   - Decrease the peak absorption magnitude
   - The answer is incorrect. Accepted Answers:

2. The volume and mass of a porous fibrous material is 0.51 m³ and 40 kg respectively, and the fiber density is 25 g cm⁻³. What is the porosity of such a material? (1 point)
   - 0.8
   - 0.82
   - 0.78
   - 0.79
   - The answer is incorrect. Accepted Answers:

3. A perforated panel has a 20% porosity and thickness 5 mm and an entry depth, d = 15 cm, then what is its resonance frequency? (1 point)
   - 667 Hz
   - 695 Hz
   - 725 Hz
   - 800 Hz
   - The answer is incorrect. Accepted Answers:

4. Following Figure shows a section of a large perforated panel. What is its porosity? (1 point)
   - 0.1
   - 0.15
   - 0.20
   - 0.22
   - No answer is incorrect. Accepted Answers:

5. A perforated panel has a 20% porosity and thickness 5 mm and an entry depth, d = 15 cm, then what is its resonance frequency? (1 point)
   - Ignore correction, and take speed of sound = 345 m/s
   - 667 Hz
   - 695 Hz
   - 725 Hz
   - 800 Hz
   - The answer is incorrect. Accepted Answers:

6. What is the working principle of a panel sound absorber? (1 point)
   - Incident sound energy is absorbed due to viscous shear
   - Sound energy is radiated from the panel at coincidence angle
   - Incident sound energy essentially couples with the panel and energy to test when vibrating the panel
   - None of these
   - No answer is incorrect. Accepted Answers:

7. Incident sound energy couples with the panel and energy is lost in vibrating the panel (1 point)
   - True
   - False
   - The answer is incorrect. Accepted Answers:

8. Select the statements that are always true for sound absorption by porous fibrous materials? (2 points)
   - The higher the tortuosity of the material, higher is the sound absorption
   - The higher the tortuosity of the material, higher is the sound absorption
   - Bulk modulus of material is much higher than bulk modulus of the fluid medium, sound absorption is higher
   - Such absorbers require frequent changing and/or replacement because the pores may get clogged due to dust and other contaminants in the air
   - No answer is incorrect. Accepted Answers:

9. The higher the tortuosity of the material, higher is the sound absorption (2 points)
   - True
   - False
   - The answer is incorrect. Accepted Answers:

10. How does a perforated plate absorb sound? (2 points)
    - Incidence sound energy couples with the panel and energy is lost in vibrating the panel
    - Incident sound energy couples with the panel and energy is not lost in vibrating the panel
    - Such absorbers require frequent changing and/or replacement because the pores may not get clogged due to dust and other contaminants in the air
    - The answer is incorrect. Accepted Answers: