



**NBS-001-005404**      Seat No. \_\_\_\_\_

**Second Year B. A. (I.D.) (Sem. IV) (CBCS) Examination**

**April / May - 2017**

**Building Science - II**

*(Acoustics)*

**Faculty Code : 001**

**Subject Code : 005404**

Time : 2 Hours ]

[ Total Marks : 50

- Instructions :** (1) All questions are compulsory.  
(2) Any ambiguity will be considered as a wrong answer.

**1**      Choose the correct answer: **10**

- (1) Which of the following material is not good for room acoustics?  
(A) Glass wool  
(B) Mineral wool  
(C) Exposed concrete wall  
(D) Plywood panel
- (2) Which of the following material would you suggest for ceiling of a theater?  
(A) Exposed RCC slab  
(B) Glossy tiles  
(C) Plain gypsum board  
(D) Textured plaster of Paris
- (3) Which material is best for sound insulation?  
(A) Concrete wall                      (B) Wooden partition  
(C) Brick wall                              (D) Glass wall
- (4) Which of the following is not sign of better acoustical design of a room?  
(A) Even dispersion of sound  
(B) Absence of annoying echoes  
(C) Short reverberation time  
(D) Long enough reverberation time

- (5) Select the best material for sound absorption.
- (A) Glossy tiles
  - (B) Porous fiber based surface
  - (C) RCC wall
  - (D) Textured plaster
- (6) Which of following material has minimum sound absorption coefficient?
- (A) Painted brick work      (B) Plaster walls
  - (C) 6 mm cork sheet      (D) 3 mm plywood panel
- (7) To improve sound diffusion \_\_\_\_\_
- (A) Surface needs to be so plain
  - (B) Color of surface should be dark
  - (C) Surface should be curvilinear
  - (D) Surface should be with more textures
- (8) Speakers for the auditorium or theater should be placed at...
- (A) Symmetrical and just above ear level
  - (B) All over the space below ear level
  - (C) Mounted in ceiling and wall.
  - (D) Symmetrical and just below ear level
- (9) In hall of 20,000 cu ft of volume space, reverb time for music should be \_\_\_\_\_
- (A) 0.50 - 1.50                      (B) 1.30 - 2.20
  - (C) 2.20 - 3.50                      (D) 3.50 - 4.00
- (10) One can notice Doppler Effect while.....
- (A) Sound source is moving and observer is stationary
  - (B) Source and observer both stationary
  - (C) Source and observer both are moving
  - (D) None of the above

- 2** Fill in the blanks : **5**
- (1) The speed of sound in air at sea level is approximately \_\_\_\_\_.
  - (2) Sound absorption coefficient describes the efficiency of \_\_\_\_\_ or \_\_\_\_\_ to absorb the sound.
  - (3) The \_\_\_\_\_ the frequency the \_\_\_\_\_ the wavelength.
  - (4) The absorption coefficient varies with the \_\_\_\_\_ of sound.
  - (5) If the volume of space is 40,000 ft<sup>3</sup> speech reverb time is \_\_\_\_\_.
- 3** Write definitions : **5**
- (1) NCR Rating
  - (2) Absorption
  - (3) Sound Level
  - (4) Diffusion
  - (5) Flutter Echo
- 4** Answer the following questions : (any five) **30**
- (1) Describe the nature of sound.
  - (2) What are the characteristics of sound?
  - (3) Write basic elements of acoustics design.
  - (4) Requirements of a good acoustic material.
  - (5) What is the difference between insulation and absorption?
  - (6) What is Doppler Effect?
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