Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17MT2020** | **Duration :** | **3hrs** |
| **Sub. Name :** | **STUDIO ACOUSTICS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a | Discuss briefly on Reflection of Sound from Concave, Convex and Parabolic surfaces. | CO1 | 10 |
| b | Pictorially show the difference in Diffraction of sound waves in the below given cases:    Compare and discuss on diffraction and refraction of sound. | CO1 | 10 |
| (OR) | | | | |
| 2. | a | Discuss variance in the Refraction of sound in the earths atmosphere. | CO4 | 10 |
| b | List down the ideals requirements for a perfectly diffuse Sound fields. Also explain the reason for Comb filtering effect to take place in long auditoriums. | CO4 | 10 |
| 3. |  | Calculate the RT60 of a room with the dimension of 23.3 X 16 X 10ft. The floor is treated with concrete and walls and ceiling is treated with Gypsum board. The absorption coefficient of treatment material is as follows:   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Material** | **125Hz** | **250Hz** | **500Hz** | **1kHz** | **2kHz** | **4kHz** | | **Gypsum Board** | 0.29 | 0.10 | 0.05 | 0.04 | 0.07 | 0.09 | | **Concrete** | 0.01 | 0.01 | 0.015 | 0.02 | 0.02 | 0.02 | | CO2 | 20 |
| (OR) | | | | |
| 4. |  | Demonstrate pictorially 3 methods by which Absortion coefficients rate of a material can be found out. | CO3 | 20 |
|  |  |  |  |  |
| 5. |  | Calculate atleast 4 Axial mode, 4 Tangential mode and 2 Oblique room madal resonance frequencies if the dimensions of the room is given to be: Length: 12.46ft, Width: 11.42ft, and Height: 7.90ft. | CO2 | 20 |
| (OR) | | | | |
| 6. |  | Design a 1 dimensional Quadrature Residue Diffuser (QRD) with prime number 17. Also calculate and mention all the frequencies that will get absorbed by the QRD if the per unit length of the well depth is 3cm. | CO5 | 20 |
|  |  |  |  |  |
| 7. | a | List down the basic requirements that should be considered in construction of a studio so as to build confidence in the clients. | CO2 | 10 |
| b | Suggest a practical floor isolation for a make shift room in an apartment 3rd floor which is planned to be made into a studio. | CO2 | 10 |
| (OR) | | | | |
| 8. |  | Appraise atleast one auditorium or seminar hall in the University and discuss the criterions that you will consider before starting to do acoustic treatment. Suggest optimal acoustic treatment for the same place. | CO6 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Design a large recording studio with clear dimensions. Suggest the optimum room ratio as well as mention pictorially all the acoustic treatment that may be done to make studio usable for different types of clients. | CO5 | 20 |