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



**End Semester Examination – Nov / Dec – 2019**

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

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | List down the different types of Absorbers. Draw diagrams if necessary. | CO3 | 20 |
| **(OR)** | | | | |
| 2. |  | With illustration, explain methods to determine absorption coefficient. | CO3 | 20 |
|  |  |  |  |  |
| 3. |  | Write short notes on Reverberation Time. Explain with a neat diagram, the methodology by which it is calculated. | CO1 | 20 |
| **(OR)** | | | | |
| 4. | a. | Calculate the SPL for sound waves with rms pressure amplitude of 1Pa, 2Pa and 2µPa. | CO1 | 10 |
| b. | Discuss the importance of acoustics in a studio. | CO2 | 10 |
|  |  |  |  |  |
| 5. |  | List down and explain the different measurement techniques used  for Room response measurement. | CO1 | 20 |
| **(OR)** | | | | |
| 6. |  | What are neutral rooms and how can they be realized practically? | CO3 | 20 |
|  |  |  |  |  |
| 7. |  | Calculate the average RT60 for a room with the given specifications:  Dimensions: 20ft x 15ft x 10ft  Treatment: Ceiling – Acoustic Tiles  Flooring – wood  Two adjacent walls – Gypsum board: ½ inch  Other walls – Concrete block, coarse   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Material | 125Hz | 250Hz | 500Hz | 1kHz | 2kHz | 4kHz | | Gypsum Board: 1/2inch | 0.29 | 0.10 | 0.05 | 0.04 | 0.07 | 0.09 | | Wood | 0.15 | 0.11 | 0.10 | 0.07 | 0.06 | 0.07 | | Acoustic Tiles | 0.07 | 0.21 | 0.66 | 0.75 | 0.62 | 0.49 | | Concrete block, coarse | 0.36 | 0.44 | 0.31 | 0.29 | 0.39 | 0.25 | | CO2,  CO3 | 20 |
| **(OR)** | | | | |
| 8. |  | What are the four aspects required to isolate a room? Explain each one of them in detail. | CO1 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Design a Schroeder’s one dimensional diffusers with prime number 13. Draw the elevation of the prime number quadratic residue based well depths and mention the frequency range that would be diffused by the panel if the dimensions of the depths of 1 unit would be 1m. | CO3 | 20 |