

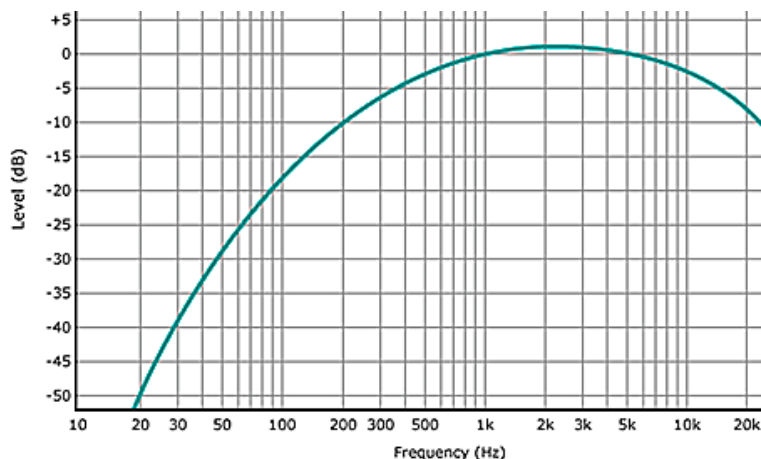
## ITL 760 Noise Monitoring & Control I Minor Test

Date: 10.11.20

Max Marks: 20

Time: 1 Hour  
Attempt All Questions

1. Answer the following very briefly.
  - i) What is the wavelength of sound at 100 Hz frequency? What is the unit of loudness measurement called? (1)
  - ii) Which is a narrower bandwidth filter – octave or 1/3 octave? Determine lower and upper frequency limits for octave band centre frequency of 63 Hz. (1)
  - iii) Why do we use “Weighting Networks” in noise measurements? Which weighting should be used for the measurement of very high noise levels? (2)
  - iv) How much is the time window required in 1600 lines FFT analyser to analyse a signal from 0 to 20 kHz so that real time is maintained? (1)
  - v) What are the noise exposure limits for a daily exposure of 4 hours, 2 hours, 1 hour, and 1 minute, as per ISO 1999? (2)
2. i) Write one-dimensional acoustic wave equation explaining the quantities used. (3)
- ii) A noise source is generating 75, 86, 92 and 95 dB levels at 50, 200, 500 and 1k Hz frequencies respectively in linear mode. Find out the overall noise level of the source in dB(A) using the following A-weighting filter. (2)



3. i) Compute the error in dB in sound intensity measurements if the measured pressure-intensity index is 4 dB and the residual pressure intensity index of the system is 8 dB. (2)
  - ii) Explain p-u method of sound intensity measurements. (3)
4. What is “aliasing” and how is it avoided? (3)