

# Lab 5

Health & Medicine



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Laboratory Report Number Question Image shown above is yielded when the sinusoid frequency is low, at 5, and image 2 is the result when the frequency of the spectrum of amplitude is set at 5. This set up yields 5 spikes/ waves that are easily discernible and countable due to the fact that the spectrum of amplitude is close and 5 is the value of frequency. One amplitude spectrum is of positive value, +5, and the other is negative, that is -5. Image 3 that exhibits 50 waves has a higher frequency of 50 and has a spectrum of amplitude that is more distant when likened to that of images of low frequency as 5 as in image 2. However, when the value of frequency was upped to 100, as in image 5, the amplitude of spectrum obtained was more distantly spaced when compared to those previous images with frequencies 5 and 50. Overall, the experiment proves differences/ changes in wavelength when frequencies are altered. In addition, the experiment Fourier offers better insight regarding waves.

#### Question 2

The images highlighted above are those of frequency wavelength cycles of 20. 5, 60 and 100 that are found in the direction of X. Proportional to the frequency value/ strength applied the 2 dots found on the right portion of the images are variously spaced. This is seen the three images 7, 8 and 9 where images 8 and 9 which have superior frequencies exhibit greater spacing between the two dots that image 7 that has frequency 20. 5. Image 9 has the greatest spacing therefore, as is clearly seen. This test demonstrates that waves are not found in the direction of Y but are situated along the X direction.

#### Question 3

The images shown have two spikes divided by the Fourier transform and the <https://assignbuster.com/lab-5-essay-samples/>

image and are exhibited as two different frequencies. As observed in image 10, there exist spikes frequencies which are low at 5.5. In image 11, spikes are of high frequency, at 30.5 with two waves above 0. The first of these waves above 0 is parallel to the low waves of frequency at 5.5 and the second one also parallel but to the waves of frequencies that are high at 30.5. Moreover, the spikes on the positive section resemble mirror images of those on the negative part as observed in the images 11, 13, 15. Image 13 and 12 additionally depict the same outcome as above when their values of  $N_1$  is 5.5 and that of  $N_2$  is 70.5. This implies simply that more brightness is obtained with increase in frequency. Contrarily, image 14 and image 15 with  $N_1$  being 20 and  $N_2$  at 22 do not result in frequencies that are good as the waves move and stop repeatedly (as observable in the images). To counteract this menace, one simply needs to increase the values of frequency that are employed.

#### Question 4

Image 17 with  $M$  values 20 and  $N$  value 20 has 20 spikes in the direction of  $H$  and equally another 20 in the direction of  $V$ . For the image, four dots are situated close to the center denoting low horizontal and vertical orientations' frequencies. Image 18 on the other hand, with  $M$  value 70 and  $N$  value 70 too, has four dots distantly spaced from the center particularly when gauged against image 17. This implies the vertical direction and that of the horizontal both boast frequencies that are high. Image 19 with  $M$  value 50 and  $N$  value 20 demonstrates 20 spikes in the direction of the horizontal and 50 in the vertical orientation. The direction of  $X$  has two dots close to the center therefore implying the horizontal direction's low frequency. The direction of  $Y$ , on the other hand, has two dots distant from the center thus

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denoting high frequencies in the direction of the vertical. In general, in this instance, the frequency of the vertical is greater than that of the horizontal. Image 20, with M value 30 and N value 80 exhibits 30 spikes in the direction of the vertical and another 80 in the direction of the horizontal. High values of frequency in the direction of the horizontal are expressed by the two dots in the direction of X being distant from the center while the direction of the vertical's low values of frequency is implied by the fact of the two dots in the direction of the Y tending close to the center.