

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2018/2019**

**SPECIAL/SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF**

**BACHELOR OF ARCHITECTURAL TECHNOLOGY**

**ABA 2403: BUILDING ENVIRONMENT SCIENCE III {ACOUSTICS]**

**DATE: JULY 2019 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE**

a) Describe the following terms as they relate to sound

i) Wave length (2 marks)

ii) Velocity (2 marks)

iii) Frequency (2 marks)

b) Explain what happens to a sound wave when it is incident on a surface (6 marks)

c) With clear illustrations, describe three modes of indoor sound transmission (12 marks)

d) Describe three main sounds absorption mechanisms (6 marks)

**QUESTION TWO (20 MARKS)**

a) Define the following terms

i) Sound transmission co-efficient (4 marks)

ii) Sound transmission class (4 marks)

b) With clear illustrations, explain how the growth and decay of sound happens (12 marks)

**QUESTION THREE (20 MARKS)**

a) Explain how sound is comparatively transmitted in solids, liquids and gases (6 marks)

b) Describe the surface effects that influence the outdoor transmission of sounds (14 marks)

**QUESTION FOUR (20 MARKS)**

a) Explain how sound transmission happens through openings, highlighting the key mechanisms that contribute to such (6 marks)

b) With clear illustrations, describe how sound waves behave when incident on the following surface configurations

i) concave surfaces ( 7 marks)

ii) convex surfaces (7 marks)