



TECHNICAL UNIVERSITY OF MOMBASA
**Faculty of Engineering &
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN ARCHITECTURE (DA 13M)

EAR 2302: ACCOUSTIC DESIGN I

END OF SEMESTER EXAMINATION

SERIES: APRIL 2015

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions of the **FIVE** questions

Maximum marks for each part of a question are as shown

Use neat, large and well labeled diagrams where required

This paper consists of **TWO** printed pages

Question One

Briefly explain:

- (i) Sound propagation
- (ii) Frequency, amplitude
- (iii) Reflection
- (iv) Refraction
- (v) DBscale
- (vi) Sound pressure
- (vii) Sound Energy

(20 marks)

Question Two

- a) Differentiate between impact, air borne and transmitted sound
- b) Explain octave bounds of music spectrum

(20 marks)

Question Three

List TEN factors of sound insulation in blogs

(20 marks)

Question Four

Explain:

- a) Echo
- b) Reverberation
- c) Room absorbent
- d) Room acoustics factors

(20 marks)

Question Five

Calculate reverberation time in a multipurpose hall 6 x 10 x 3.5m at mcd freq 500Hz, audience 10 persons:

	Surface	Finish	Area	Absorption Coefb at 500Hz
1	Ceiling	Plaster	60	0.02
2	Walls	Plaster	92	0.02
3	Window	Colour (4mm)	22	0.1
4	Floor	Wood block	60	0.05
5	Occupant	Clothes	10	0.43
6	Air	Gases	213m ²	-