



ELIZADE UNIVERSITY, ILARA-MOKIN,  
ONDO STATE, NIGERIA

DEPARTMENT OF  
MECHANICAL AND AUTOMOTIVE ENGINEERING

FIRST SEMESTER EXAMINATIONS


2017/2018 ACADEMIC SESSION

COURSE: MEE 505 – Mechanical Engineering Design III (3 Units)

CLASS: 500 Level Mechanical Engineering

TIME ALLOWED: 3 Hours

INSTRUCTIONS: Answer any **FOUR** questions

  
HOD'S SIGNATURE

Date: March, 2018

**Question 1**

- (a) (i) What is Engineering Design?  
(ii) Name four (4) tools on the 3D Model window in Autodesk inventor **(4 Marks)**
- (b) (i) What is the goal of human factors and ergonomics in product development?  
(ii) Which anthropometric data are vital to the design of a driver' seat in a passenger car? **(5 Marks)**
- (c) In two to three pages, discuss the functions and operations of NOTAP. **(6 Marks)**

**Question 2**

- (a) (i) Describe the term, "Design for Assembly".  
(ii) Name five (5) tools on the sketch window in Autodesk inventor. **(4 Marks)**
- (b) The first stage in the development of a new product is the feasibility studies; what are the major considerations? **(5 Marks)**
- (c) Engineering is a "throw-away" industry, with adverse impact on the environment, Discuss. **(6 Marks)**

**Question 3**

- (a) (i) What is concurrent engineering?  
(ii) What is graphic design? **(4 Marks)**
- (b) List five benefits complying with engineering standards in machine design.

(c) (i) What is Green Manufacturing?

(5 Marks)

(ii) Why is material selection extremely important in product development; which materials are amorphous metals?

(6 Marks)

#### Question 4

(a) (i) Define the term "Philosophy of Design"

(ii) Name three (3) software used in graphic design.

(4 Marks)

(b) Outline the basic design process, and identify the most important phase, giving reasons.

(5 Marks)

(c) "From the standpoint of engineering materials, Nigeria is naturally well-positioned for economic diversification, from being mainly a mono-economy society"; Discuss.

(6 Marks)

#### Question 5

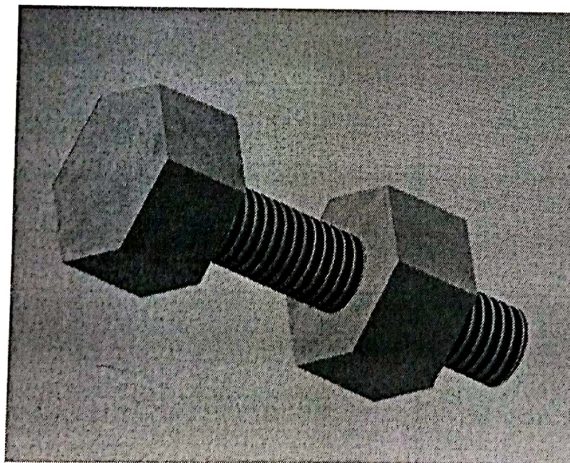
(a) List 8 factors for consideration as Design Criteria.

(4 Marks)

(b) Write briefly on three-named organisations for standardisation, of your choice.

(5 Marks)

(c) Describe the process involved in the drafting of the object in the below figure.



(6 Marks)

#### **Summary of Assessment**

Assignments and Class Tests 15%

Design Project 25%

Final Examination 60%

Total 100%