ELIZADE UNIVERSITY, ILARA-MOKIN,
ONDO STATE, NIGERIA

DEPARTMENT OF
MECHANICALAND AUTOMOTIVE ENGINEERING

FIRST SEMESTER EXAMINATIONS

2017/2018 ACADEMIC SESSION

COURSE: MEE 507 – Engineering Design Process (2 Units)

CLASS: 500 Level Mechanical & Automotive Engineering

TIME ALLOWED: 2 Hours

INSTRUCTIONS: Answer any **THREE** questions

HOD'S SIGNATURE

Date: March, 2018

Question 1

(a) Which factors inform the choice of materials in the design of an engineering device or facility?

(4 Marks)

(b) All engineering models are not necessarily Mathematical Models
With short definitions, describe this and other types of engineering models.

(6 Marks)

(a) (i) What are the main functions of a project manager?
(ii) In two to three written pages, describe the phases in project life cycle

(10 Marks)

Question 2

(b) (i) Briefly describe the procedures of two-named techniques for metal heat treatment.
(ii) What are the expected effects of each process on the metal?

(4 Marks)

(c) A 300-Level engineering student is assigned a topic, "Modelling and Simulation of Air Lock in Pipe Flow" Provide a brief to enable the student understand what the underlined words infer.

(6 Marks)

(d) (i) How does project development compare with product development?
(ii) What are the indications that a project has failed?

(10 Marks)

Question 3

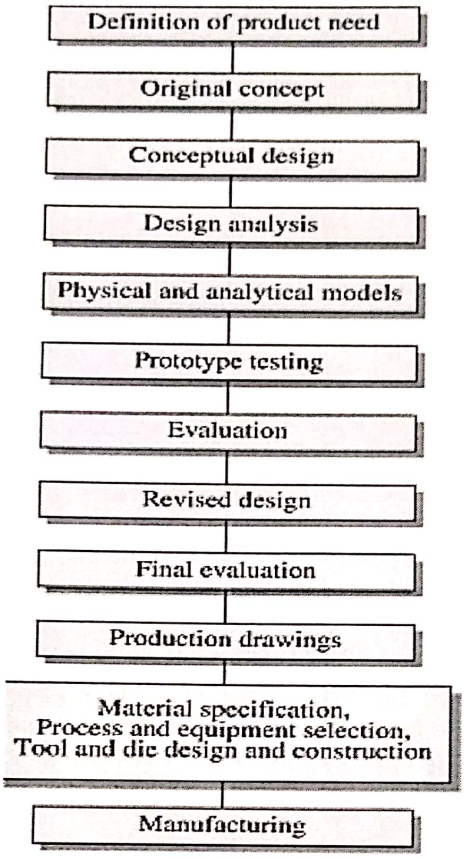
(c) "Iron and Steel are like mileposts from start to finish of a journey". Discuss.

(4 Marks)

(d) (i) Produce an outline of engineering materials.
(ii) Distinguish between alloys and composites.

(6 Marks)

(e) The traditional product development process is as shown below



What are the challenges in following this process, and which alternative would be better?

(10 Marks)

Question 4

(a) Enumerate essential steps in modelling an engineering process or design

(4 Marks)

(b) Spell out the acronyms QAQC, MATLAB, and write briefly on any one of the two.

(6 Marks)

(c) Boutique dummies are usual static; present an outline of a proposal for the development of a solar-powered dummy that would at least rock in its position.

(10 Marks)

Summary of Assessment Assignments and Class Tests 15% Design Project 25%
Final Examination 60%
Total 100%