



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN MECHANICAL ENGINEERING**

**EAU 2101 : MOTOR VEHICLE THEORY**

**SUPPLEMENTARY EXAMINATION**

**SERIES:** Select series 2017

**TIME:** 2 HOURS

**DATE:** Pick Date Sep 2017

## Instructions to Candidates

You should have the following for this examination

*-Answer booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt any **THREE** questions.

**Do not write on the question paper.**

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## Question ONE

- (a) Outline the contributions of the following in the development of the motor industry.
- (i) Duryea brothers
  - (ii) Karl Benz
  - (iii) Henry Ford
- (9 marks)
- (b) Briefly describe the **three** types of vehicle transmission systems. (6 marks)
- (c) Describe any **five** vehicle body types. (5 marks)

## Question TWO

- a) Use a sketch to show the main components of a chassis. (14 marks)
- b) Describe the **three** basic vehicles chassis frame construction. (6marks)

### Question THREE

- (a) State **three** disadvantages of beam axle suspension compared to independent suspension. (3 marks)
- (b) State any **four** functional requirements of suspension system. (4 marks)
- (c) Explain with the help of sketch the working of a sliding pillar suspension system. (13 marks)

### Question FOUR

- (a) Explain the **two** main purposes of the tyre tread (4 marks)
- (b) Distinguish between the two wheel balancing approaches (4marks)
- (c) Describe with the aid of sketches the following wheel balancing terminologies:-
  - (i) camber angle
  - (ii) king-pin angle(12 marks)

### Question FIVE

- (a) List **five** functions of a car charging system. (5marks)
- (b) State any **five** factors to be considered in the design of vehicle starting systems. (5 marks)
- (c) Briefly describe the impact of the current electrical and electronic systems of a vehicle on comfort and safety of the occupants. (10marks)