



TECHNICAL UNIVERSITY OF MOMBASA

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.

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)