



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN AUTOMOTIVE ENGINEERING YEAR I SEM III

VEHICLE TECHNOLOGY AND PRACTICE.

DATE: 18/12/2020

TIME: 8:30 – 11:30 AM

INSTRUCTIONS TO CANDIDATES

Answer FIVE questions

1. (a) With the aid of sketches , explain THREE types of :-
 - (i) Tyres.
 - (ii) Wheel rims.
(b) (i) Explain the following tyre rating
P195/55R16.

(iii) Explain the procedure of repairing a tubeless punctured tyre.

(c) Explain the procedure of replacing a front wheel bearing of a car. (20 marks)
2. (a) Explain the purpose of using;
 - (i) A steering gearbox.
 - (ii) Power steering
(b) with the aid of a sketch, explain the operation of a power steering system. (20 marks)
3. (a) With the aid of a sketch, explain the construction of a Macpherson type of suspension System.
(b) With the aid of a diagram, explain the operation of the hydrolastic suspension. (20 marks)
4. (a) (i) List THREE type of brakes.

(ii) With the aid of a sketch, explain the operation of eddy current brakes.

(b) With the aid of a sketch, the operation of a continuous flow of the hydraulic servo system. (20 marks)
5. (a) Explain the procedure of servicing brakes wheel cylinders for shoe brakes.

(b) With the aid of a sketch, explain the operation of air brakes. (20 marks)