



MACHAKOS UNIVERSITY

DIPLOMA IN MOTOR VEHICLE ENGINEERING

THIRD YEAR SEM TWO

VEHICLE TECHNOLOGY AND PRACTICE

TIME 2HRS

Instructions

- This paper consists of FIVE questions
- Question ONE is Compulsory
- Answer any other TWO questions

- 1.a) State three requirements of a brake fluid. (3 mks)
- b) State any two advantages of a transfer gearbox in a vehicle (2 mks)
- c) Explain the function of brakes in a vehicle (3 mks)
- d) Draw and label a simple diagram of a telescopic shock absorber (10 mks)
- e) With aid of a diagram explain how a rear double reduction is achieved in a commercial vehicle with large diameter wheels. (13 mks)
- 2.a) With aid of a diagram show how a leaf spring is normally attached to the chassis (10mks)
- b) With aid of a sketch, explain the operation of hydraulastic suspension (10 mks)
- 3.a) State Two advantages of using air in the braking system of a vehicle (2 mks)
- b) With aid of a diagram explain the operation of compressed air braking system in a heavy commercial vehicle. (18 mks)
- 4 a). State any two advantages of hydraulic retarder. (2 mks)
- b) With aid of a diagram, explain the operation of hydraulic retarder. (18 mks)
5. a) State any two advantages of rubber suspension in a vehicle. (2 mks)

b) With aid of a characteristic graphs, illustrate the effect of a damper on a suspension spring (3 mks)

b) With aid of a diagram explain the operation of hydro-pneumatic suspension system (15 mks).