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071605T4AUT**AUTOMOTIVE ENGINEERING LEVEL 5****ENG/OS/AUT/CR/7/5/A**

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SERVICE VEHICLE BRAKING SYSTEM**July/Aug 2025**Printed By: Technical And Vocational College Date: 29.07.2025
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**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

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TIME: 3 HOURS**INSTRUCTIONS TO THE CANDIDATE**Printed By Technical And Vocational College Date:
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1. This paper consists of **TWO** sections: **A** and **B**.
2. Attempt **ALL** the questions in Section **A** and any **THREE** questions from Section **B**.
3. Marks for each question are as indicated.
4. You are provided with a separate answer booklet.
5. Do not write on the question paper.

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Indicated and that no questions are missing.

SECTION A: 40 MARKS***Attempt ALL questions in this section***

1. Braking lining material difference qualities. List **four** requirements for those materials. (4 Marks)
2. A driver pressed brake pedal that requires adjustment. Assume you are technician in automotive workshop, state **four** symptoms that show brake need adjustment. (4 Marks)
3. Asbestos-based organic friction materials were widely used prior to mid-1970. Explain why asbestos materials are nowadays not used as a lining material. (4 Marks)
4. Modern vehicles have Anti-lock braking system (ABS). List **four** components of ABS brake system. (4 Marks)
5. Assume you are the driver and you encounter a brake system failure while driving at high speed. Briefly explain **two** steps you would take to slow down and bring the vehicle safely to rest. (4 Marks)
6. Modern heavy commercial vehicles are fitted with pneumatic brakes. State **four** advantages of these brakes in the vehicle. (4 Marks)
7. A vehicle pulls to one side when the brakes are applied. List **four** common reasons why a vehicle might pull to one side. (4 Marks)
8. Auxiliary brakes are widely used on heavy commercial vehicles. State **four** common types of auxiliary braking systems. (4 Marks)
9. When changing brake shoes of drum brake, the safety of a technician is paramount. State **four** safety gears you will put on. (4 Marks)
10. When servicing vehicle braking system specific tools and equipment are required. As a trainee, highlight **four** tools and equipment in servicing system. (4 Marks)

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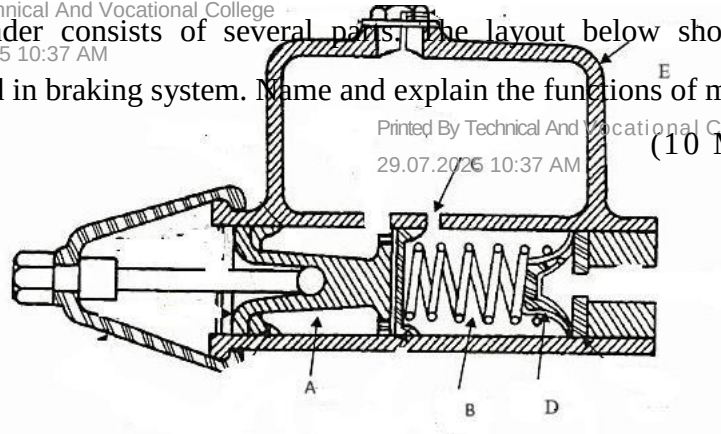
SECTION B: (60 Marks)**Attempt any THREE questions in this section.**

11. Manager owns a saloon upon starting his car, ABS light was persistent over the entire journey and therefore he took his car to the garage for a service.

a) As a technician, explain **five** possible causes of ABS light showing on the dashboard.

(10 Marks)

- b) Master cylinder consists of several parts. The layout below shows parts of master cylinder used in braking system. Name and explain the functions of marked parts A-E.



(10 Marks)

12. Automotive engineering trainees were on an industrial academic trip to General Motors (GM). During the visit, they realized that larger vehicles trucks, buses, and trailers were installed with air brakes as opposed to hydraulic brakes.

a) Discuss **five** advantages of air brakes over hydraulic brakes.

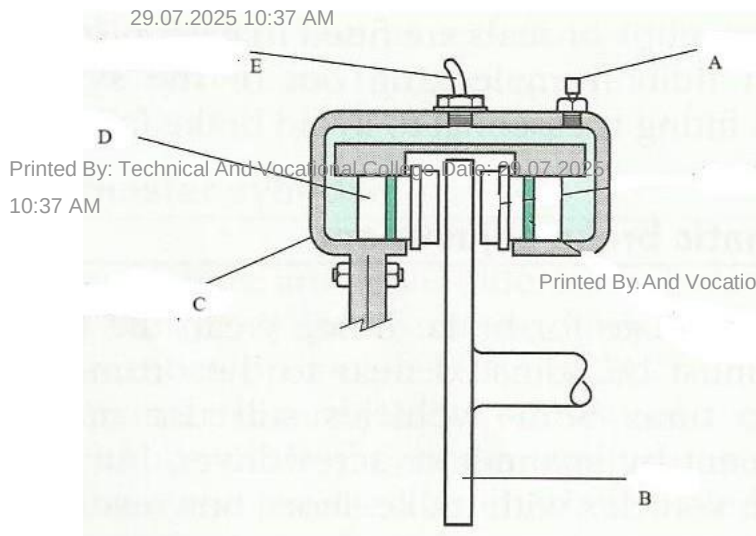
(10 Marks)

- b) Matatu driver was driving the institute's bus. He realized that when he pressed the brake pedal there, was excessive pedal travel. Briefly explain causes of this fault and the remedies.

(10 Marks)

13.

- a) Disc braking system is preferred in front wheel. In the diagram, below name the parts marked A-E and explain functions. (10 Marks)



- b) During practical's session, a technician in JKL institute was required to guide new service braking system of a vehicle that had been brought in by a customer. As a trainee in automotive engineering, briefly explain **five** safety precautions put in place when servicing braking system. (10 Marks)

14. As a new employee in a leading automotive industry required to guide junior technicians on servicing the braking system of a car that has been brought in by a customer. One of the requirements you are tasked with is to check the brake fluid level and quality before

- a) Outline **six** characteristics of a brake fluid. (12 Marks)

- b) Explain **four** routine maintenance practices to be carried out in vehicle braking system.

(8 Marks)

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