

071603T4AUT

AUTOMOTIVE MECHANIC LEVEL 3

ENG/OS/AUT/CR/3/3/A

INSPECT AUTOMOTIVE STEERING AND SUSPENSION SYSTEMS

July/Aug 2023



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

Time: 2 Hours

INSTRUCTIONS TO CANDIDATE:

1. This paper consists of **TWO** sections: **A and B**.
2. Attempt **ALL** questions in both sections.
3. Marks for each question are indicated in the brackets.
4. You are provided with a separate answer booklet.

This paper consists of FIVE (5) printed pages

**The candidate should check the question paper to ascertain that all pages are printed as
indicated and that no questions are missing**

Turn Over

SECTION A: (20 MARKS)*Attempt ALL questions in this section***Matching response questions**

1. Match the following parts of steering system components with the correct functions.

(4 Marks)

PART		FUNCTION	
a	Steering gear boxes	a	Effective control of the steering of the vehicle due to wheels true rolling motion
b	Steering column	b	Enables the driver to alter the vehicle steered direction with a minimum effort.
c	Power steering	c	Connect the steering box to the steering wheel by means of a shaft
d	Steering geometry	d	Provides much faster and easy steering response

True or false

2. The function of a steering mechanism is to enable the driver to change the vehicle direction. (1 Mark)
- a) True
b) False
3. The purpose of a damper is to steer the vehicle. (1 Mark)
- a) True
b) False
4. A tyre valve allows inflation of the tyre with pressurized air and permits its release when necessary. (1 Mark)
- a) True

- b) False
5. Recirculating balls is not a type of a steering gearbox. (1 Mark)
a) True
b) False
6. A pneumatic tyre provides the vehicle with a frictionless contact surface upon the road. (1 Mark)
a) True
b) False
7. A tyre is made up of various coded material called plies. (1 Mark)
a) True
b) False

Multiple Choice Questions

8. In most cars rotary motion of the steering wheels is converted to lateral motion by the: (1 Mark)
A. Track arm
B. Rack and pinion system
C. Stub axle action
D. Steering box
9. Leaf springs absorbs shocks by; (1 Mark)
A. Stretching
B. Twisting
C. Compression
D. Tension.
10. _____ is not a possible cause of hard steering. (1 Mark)
A. Tight steering gear or linkage
B. Low or uneven tyre pressure
C. Improper front wheel alignment
D. Smooth turning of the steering wheel.

11. When a vehicle is moving, the suspension system is not subjected to; (1 Mark)
- A. Bouncing
 - B. Pitching
 - C. Rolling
 - D. Breaking
12. The following are parts of steering linkage, which one is not. (1 Mark)
- A. Steering arms
 - B. Drop arm
 - C. Tie rod ends
 - D. Bleeding nipple
13. Unsprung weight in suspension system is the _____ (1 Mark)
- A. Weight of vehicles
 - B. Weight of chassis frame
 - C. Weight of wheels and axles
 - D. Weight of wheels
14. _____ is not a steering gear in a vehicle (1 Mark)
- A. Rack and worm
 - B. Worm and peg
 - C. Rack and pinion
 - D. Worm and sector
15. What is the name of the longest leaf in the leaf spring (1 Mark)
- A. Upper leaf
 - B. Main leaf
 - C. Lower leaf
 - D. Side leaf
16. Spring shackles are used to join _____ (1 Mark)
- A. Chassis frame and spring
 - B. Spring and axles
 - C. Shackles and axles
 - D. Spring and steering system
17. The list below shows types of wheel rims, which one is not. (1 Mark)
- A. wire spoke rim
 - B. well-base rim
 - C. Split rim
 - D. flat-base rim

SECTION B: (30 MARKS)

Attempt ALL questions in this section

18. State **four** functions of the suspension system in vehicles. (4 Marks)
19. Suspension systems are classified into **two**, namely: (2 Marks)
20. A vehicle has been brought into the workshop with hard and rough ride. List **four** possible causes. (4 Marks)
21. Name **two** classifications of tyres. (2 Marks)
22. State **three** functions of a wheel in a vehicle. (3 Marks)
23. List **three** causes of uneven tyre wear. (3 Marks)
24. A vehicle has been brought to the workshop with a faulty leaf spring suspension. Name **four** services checks to be performed. (4 Marks)
25. List **two** main components of a suspension system. (2 Marks)
26. The following checks are carried out on a tyre. State the importance of each. (2 Marks)
- a) Tyre pressure
 - b) Tyre tread depth
27. State **four** inspections that should be carried out on steering gear at regular intervals. (4 Marks)