

**CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD**  
Technical and Vocational Education Examination

**CHASSIS SYSTEMS AND TRANSMISSION 1**  
**7130**

**JUNE 2020**

**ADVANCED LEVEL**

Specialty Name & Code	<b>AUTOMILE CONSTRUCTION AND MAINTENANCE: LIGHT VEHICLE (MA-LV)</b>
Centre No. & Name	
Candidate No.	
Candidate Name	

Mobile phones are **NOT** allowed in the examination room.

**7130CHASSIS SYSTEMS AND TRANSMISSION1: MULTIPLE CHOICE QUESTION PAPER**

**1 hour 30 minutes**

**INSTRUCTIONS TO CANDIDATES**

*Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.*

- 1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.**
- 2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

*Before the examination begins:*

- 3. Check that this question booklet is headed "AdvancedLevel -7130 CHASSIS SYSTEMS AND TRANSMISION1.**
- 4. Insert the information required in the spaces above.**
- 5. Insert the information required in the spaces provided on the answer sheet using your HB pencil:**

**Candidate Name, Exam Session, Subject Code, Centre Number and Candidate Number.**

Take care that you do not erase or fold the answer sheet or make any marks on it other than those asked for in these instructions.

*How to answer the questions in this examination:*

- 6. Answer ALL the 50 questions in this Examination. All questions carry equal marks.**
- 7. Each question has FOUR suggested answers: A, B, C and D. Decide which answer is correct. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.**

For example, if C is your correct answer, mark C as shown below:

[A] [B] [~~C~~] [D]

- 8. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.**
- 9. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.**
- 10. Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.**
- 11. You must not take this booklet and the answer sheet out of the examination room. All question booklets and answer sheets will be collected at the end of the examination.**

*Turn Over*



1. During braking, the box framework made of rolled steel sheets is subjected to
  - A torsional vibrations
  - B tensile and compressive loads
  - C tensile strength
  - D compressive and oscillating stress

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2. The rating of a suspension spring is measured in units of :
  - A Newton per metre(N/m)
  - B Pounds per square inch (PSI)
  - C Inch-pounds (in-lb)
  - D Feet-pounds (ft-lb)

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3. Suspension systems in which the deflection of one wheel by road irregularities does not affect the other wheels is called
  - A dependent suspension systems
  - B independent suspension systems
  - C rigid axle suspension systems
  - D beam axle suspension systems

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4. Vehicle rolling refers to the rotation of the vehicle about
  - A the transverse axis
  - B the vertical axis passing through the centre of gravity
  - C the longitudinal axis of the vehicle
  - D the wheel rotational axis

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5. A tire is labelled 215/60R 15 92T; the T indicates
  - A its speed rating
  - B its tread wear rating
  - C its load rating
  - D its temperature resistance rating

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6. Static and dynamic wheel balance is the even weight distribution about the
  - A wheel's axis of rotation and centreline of the wheel
  - B wheel centre axis and camber angle
  - C the z and y axis
  - D castor and wheel centre axis

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7. The brake pedal assembly uses a mechanical lever to
  - A increase the driver's force on the brake pedal applied to the master cylinder
  - B increase the distance the brake pedal needs to be depressed by the driver
  - C decrease the driver's force on the brake pedal applied to the master cylinder
  - D allow for clearance between the brake pedal and the floor when the brakes are applied

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8. In a hydro-pneumatic suspension system, what is the elastic element?
  - A Oil.
  - B Gas
  - C The piston.
  - D The sphere

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9. Residual pressure in a hydraulic circuit of drum brakes is
  - A 5 to 6 bars
  - B 2 bars
  - C 0.3 bar
  - D 0.7 bar

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10. The power-assisted brake system
  - A reduces stopping distances compared to a non-power-assisted brake system
  - B reduces the force that the driver must exert on the brake pedal
  - C does not consume engine power during operation
  - D increases idling speed during cornering

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11. The main function of the anti-lock braking system (ABS) on the vehicle is to
  - A reduce the effort required by the driver to apply the brakes
  - B automatically apply the brakes when an obstacle is detected even without the driver applying the brakes
  - C prevent the wheels from locking up during severe braking conditions
  - D instantly stop the vehicle when braking



12. Why do we tilt a driving wheel of rear wheel drive vehicles?

- A Because a steering is not of rack and pinion type.
- B Because the weight of the engine rest on the driving wheels.
- C Because the driving wheels have the tendency of moving outwards when the vehicle is in motion.
- D To compensate eventual differences in temperatures.

13. Which type of antilock braking system (ABS) requires the use of four wheel speed sensors?

- A One channel
- B Two channel
- C Three channel
- D Four channel

14. In an automobile, the anti-roll bar

- A permits the fitting of the coil springs
- B does not have any effect on the suspension
- C stops the vehicle from being swayed to one end during cornering
- D enables the vehicle to sway in order to perfectly negotiate a bend

15. Recirculating steel balls are used in most conventional steering boxes because they

- A provide for a variable ratio
- B keep the steering wheel centred
- C reduce friction and make steering easy to turn
- D help provide feedback to the driver regarding the road surface

16. We call "off-set" in steering geometry

- A the angle between the pivotal axis and the vertical
- B the angle between the wheel/tyre and the vertical
- C the distance that exist on the ground between the extension of the pivotal axis and the median of the tyre
- D the distance that exist between the extension of the steering knuckle and the tyre

17. Wheels and tyres are part of

- A the transmission
- B the steering
- C the suspension
- D the bearings

18. Planet gears of the differential unit rotate on the axle only during

- A straight ahead movement.
- B cornering
- C slippery road surface.
- D high speeds

19. The main cause of a gear jumping out of mesh in a manual-shift gear box is

- A worn blocking ring.
- B too much main shaft end play.
- C broken synchronizer key.
- D worn shift interlocks.

20. Dog-clutching of shafts in the gear box

- A permits to rotate the secondary shaft twice as fast as the speed of the engine
- B modifies the speed of the primary shaft
- C connects up two shafts and make them rotate at the same speed
- D reinforces the engine speed

21. Ground clearance of a vehicle is

- A the distance between the axil and the ground
- B the distance between the chassis and the ground
- C the distance between the ground and the lowest point of the centre part of the vehicle
- D the distance between the lowest point of the engine and the ground

22. Front brakes grab quickly when light pedal pressure is applied. The cause could be a faulty

- A proportioning valve
- B pressure differential valve
- C metering valve
- D residual check valve

23. In the automobile, the axle

- A rotates around the planet gears
- B increases the power of the engine
- C amplifies braking force
- D supports the wheel hub



24. A vehicle's chassis consists of  
 A everything except the framework  
 B the framework and nothing else  
 C everything except the body and equipment  
 D the mechanical components
- 
25. Disc brakes are less likely to overheat or fade than drum brakes because  
 A the friction material operates on both sides of the disc  
 B more surface area of friction material is used  
 C the disc is of greater diameter than the drum.  
 D the disc is exposed to the cooling air.
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26. Why do shafts vibrate violently at times?  
 A Inadequate lubrication  
 B Too much torque  
 C Too much end-play  
 D Shaft rotation is at critical speed
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27. What is the main reason why belts and chain drives are used instead of gears?  
 A Noise elimination.  
 B Large centre-shaft distances  
 C Low cost and minimum maintenance.  
 D Speed ratio gain
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28. A vehicle's stopping distance depends solely on :  
 A Torque  
 B Speed  
 C Load  
 D Force
- 
29. Failure to provide proper backlash between gears can result in  
 A destruction of the gears  
 B proper operation of the gears  
 C partial gear operation  
 D no effect on the gears
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30. Universal joints are usually used in pairs. Why?  
 A Their operating angles can be halved  
 B A better constant velocity can be obtained  
 C An intermediate shaft can be used  
 D They divide the torque load
- 
31. The diaphragm clutch pressure is  
 A adjusted by moving the Thrust bearing inwards  
 B adjusted by setting the linkage  
 C self-adjusting  
 D adjusted by setting the Toggle lever
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32. On what type of suspension spring is the centre bolt employed?  
 A Coil  
 B Leaf  
 C Torsion bar  
 D Stabilizer bar
- 
33. A vehicle in which all axle are attached to the frame is known as  
 A Articulated type  
 B Four wheel drive or 4X4 type  
 C Rigid type  
 D Pick-up
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34. A track rod is also called a  
 A pan head rod  
 B handing link  
 C control rod  
 D semi-independent rod
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35. The constant velocity type of universal joint  
 A always uses flexible fabric disc  
 B produces uniform rotational speed.  
 C must have its yokes carefully aligned  
 D is usually used as a steering column joint
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36. A fully floating shaft in a rear axle  
 A can be removed without jerking up the vehicle  
 B is subjected to twisting action.  
 C cannot be removed without jerking up the vehicle.  
 D is subjected to bending loads due to the weight of the vehicle.
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37. Which of the following alignment angle is largest?  
 A 0.55 degree  
 B  $\frac{1}{4}$  degree  
 C 45 minutes  
 D  $\frac{1}{2}$  degree
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38. Front axle beams usually have  
 A king pins pivoting in the axle beam  
 B king pins secured in the axle beam  
 C helical coil springs and radius rods  
 D a drag link connected to the two stub axles by a ball joint
- 
39. In the hydro-pneumatic suspension, automatic adjustment of the height of the vehicle is obtained by  
 A modification of the volume of oil in the system  
 B modification of the volume of air in the system.  
 C by a means of bleeding an element in the driver's compartments  
 D by a variable position push button at the dash board



40. The servo-power assisted element in brakes permits
- the driver to "feel" the braking pressure in the system.
  - the reduction of the drivers effort on the brake pedal
  - the correct/adjustment of braking pressure
  - to avoid the "locking" of the road wheels during braking
41. Which of the configuration of Epicyclic gearbox will give a forward and fast output speed?
- Sun gear stationary, ring gear drive, planet carrier driving
  - Sun gear driving, ring gear driven, planet carrier stationary
  - Sun gear driven, ring gear stationary, planet carrier driving
  - Sun gear stationary, ring gear stationary, planet carrier driving
42. In the automatic gearbox the label PRND21 on the lever signifies
- Park, Run, Neutral Drive, 2<sup>nd</sup> and 1<sup>st</sup> gears
  - Park, Rate, Neutral Drive 2<sup>nd</sup> and 1<sup>st</sup> gears
  - Park, Reverse, Neutral, Drive, 2<sup>nd</sup> and 1<sup>st</sup> gears
  - Park, Rapid, Neutral, Drive, 2<sup>nd</sup> and 1<sup>st</sup> gears
43. To charge an A/C system while it is running, the refrigerant should be added to
- the high side only
  - the low side only
  - both the high and the low sides
  - either the high or the low sides
44. The Automatic transmission fluid of a vehicle is discoloured and has an unusual odour. This could be caused by
- overrunning the engine governor
  - overheating the transmission
  - a dragging spring(parking) brake
  - improper gear selection
45. The fluid level in automatic transmission vehicles should be checked with the
- engine shutoff at normal operating temperature
  - engine shutoff and the transmission in neutral
  - engine running and the transmission in drive, at normal operating temperature
  - engine running and the transmission in park at normal operating temperature
46. The A/C system on a bus is blowing cool, but not cold, air from the dash ducts. The system has the correct charge and pressure gauges readings as normal. Which of these could be the cause ?
- The air recirculation door is stuck closed
  - The heater valve is stuck closed
  - The source of vacuum has been lost
  - The blend door is out of adjustment
47. An A/C system has a low discharge pressure. Which of these could be the cause ?
- A failed internal compressor seal
  - A restricted refrigerant flow in the condenser
  - A restricted air flow over the condenser
  - A compressor clutch that would not disengage
48. Which of these components should be replaced when an A/C is found to have excessive moisture ?
- Compressor
  - Thermostat
  - Receiver/drier
  - Evaporator
49. Excessive steering wheel freeplay may be an indication of
- a loose power steering pump drive belt
  - improperly adjusted axle stops
  - contaminated power steering fluid
  - loose steering sector-to-frame mounting bolts
50. A car has a greater turning radius in one direction than in the other. This could be caused by
- over tightened wheel bearing adjustment
  - air in the hydraulic system
  - incorrect power steering fluid
  - incorrect axle stop adjustment

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**NOW GO BACK AND CHECK YOUR WORK**

Turn over