CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
Technical and Vocational Education Examination

CHASSIS SYSTEMS AND TRANSMISSION 1
7130

JUNE XXXX **ADVANCED LEVEL**

Centre No. & Name	
Candidate No.	
Candidate Name	

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

7130 CHASSIS SYSTEMS AND TRANSMISION 1: 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 **"Advanced Level" –7130 CHASSIS SYSTEMS AND TRANSMISSION 1**.
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.**

1. If an automatic transmission slips when cold, which of these is the most likely cause;
   A Shorted low/reverse pressure switch
   B Line pressure is at maximum in 1st gear
   C Disconnected line pressure sensor
   D Low line pressure

2. In a vehicle with a single plate clutch, loss of free pedal movement can be caused by ;
   A Worn release bearing
   B Broken clutch linkage
   C Worn clutch disc facing
   D Weak pressure plate springs

3. What is the cause of " vehicle wandering" while being driven on level road ?
   A Too much negative camber
   B Too much positive caster
   C Worn ball joints
   D Too much toe-out

4. Which of these could happen if the measurements in the brake set up in figure 3 varies from the manufacturer's specifications ?

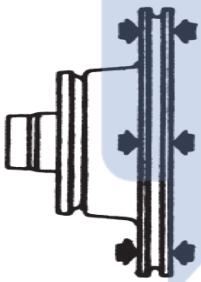

Figure 3.

   A Noisy brake operation
   B Brake grab or pull
   C Pulsating brake pedal
   D Low brake pedal

5. The car vibrates when the brakes are applied. The likely cause is
   A unequal tyre pressure
   B binding calliper slides
   C excessive rotor run-out
   D frozen calliper piston

6. Drag on a vehicle's drum brake persists even after the system is bleeded. The likely cause is
   A a blocked compensating jet
   B a blocked breather pot
   C incorrect brake shoe adjustment
   D weak brake shoe return spring

7. The drop arm is connected via a ball joint to the
   A track arm
   B track rod
   C steering arm
   D drag link

8. When not in use, the pad of a disc brake is normally held close to the disc by
   A hydraulic force
   B a spring
   C the Steel
   D a piston

9. Universal joints are used in the propeller shaft assembly to allow for
   A a speed variation of the propeller shaft.
   B a change in length of the propeller shaft.
   C a variation in the angle of the propeller shaft.
   D twisting of the propeller shaft.

10. Flexible mountings are usually placed in between a car body and the chassis frame or sub frame, so as to
   A lock the body on the frame work.
   B prevent corrosion occurring between the body and the frame.
   C reduce noise and vibration.
   D increase the clearance between the body and the tyres.

11. Three factors that are involved in boasting the efficiency of a braking system are the :
   A Area of the brake linings, the radius of the brake drum and the thickness of brake linings.
   B Radius of the car's wheel, the area of the brake lining and the radius of the brake drum/disc.
   C Thickness of the brake drum/disc, the area of the brake linings and the radius of the car's wheel
   D Radius of the car's wheels, the thickness of the brake drum/disc and the radius of the brake drum.

12. One advantage in swinging beam system is that
   A rolling motion is facilitated
   B the rate of tyre wear is reduced
   C compact
   D flexible.

13. One method used to equalize the stress on a leaf spring suspension is to
   A reduce the length of the leafs for stability reasons.

B increase height of all the leafs.
C use U- bolts across all the leafs alongside hangers.
D place the leafs from the longest to the smallest toward the axle beam.

14. One property of the rack and pinion steering gear box is
A The pinion pitch radius is reduced.
B The input steering wheel effort is stabilized.
C The steering wheel effort by the driver is reduced.
D The transfer of motion from pinion to rack is achieved along the pinion axes.

15. What part is incorporated in order to limit oscillation in the suspension?
A Springs
B Dampers
C Stabilizers
D Torsion bars

16. The gas that inflates the air bags after collision is called
A Oxygen
B Chlorine
C Aluminium
D Nitrogen

17. Which of the following components are considered to be unsprung weight?
A Propeller shaft and gearbox
B Body and frame
C Wheels and axle
D Radiator and master cylinder

18. Which of the following is not an independent suspension design ?
A Macpherson strut suspension design
B Wishbone suspension design
C Multi-link suspension design
D The rigid axle suspension design

19. Which of the following is not a good tire requirement
A Ensure a good cushioning ability
B Offer minimum rolling resistance
C Support the weight of the vehicle
D Offer maximum rolling resistance

20. The 92 in the tyre designation refers to the tyre's (Designation 215 /60R 15 92T)
A Speed rating
B Tread wear rating
C Load rating (load index)
D Temperature resistance rating

21. All of the following are correct statements about braking except
A Kinetic energy must be absorbed by the braking system.
B Kinetic energy of a vehicle doubles when the speed doubles
C The heavier the vehicle, the greater the kinetic energy when moving.
D If the vehicle weight is doubled, the kinetic energy of a moving vehicle is doubled.

22. The faster the vehicle is traveling when the brakes are applied,
A the more heat can be absorbed
B the lesser the braking force
C the greater the amount of heat created in the brake system.
D the wheel kinetic energy increases

23. A residual check valve is used to
A maintain a slight pressure on the hydraulic system
B prevent front-wheel lockup during hard braking
C prevent rear-wheel lockup during hard braking
D speed brake release to reduce brake wear

24. The following are methods of providing power assistance for the braking system except;
A Vacuum assistance
B Hydraulic assistance
C Pneumatic assistance
D Brake lining assistance

25. The following are the phases of ABS operation except;
A The release phase
B The apply phase
C The hold phase
D The wheel locking phase

26. A defective vacuum brake booster will cause a
A hard brake pedal
B soft (spongy) brake pedal
C low brake pedal
D slightly hiss noise when the brake pedal is depressed

27. The faster a wheel rotates, the higher the frequency produced by a wheel speed sensor.
A True
B False
C It depends on the type of abs system
D Only the amplitude increases and not the signal frequency

28. What causes a variable-ratio steering gear to be able to change the ratio as the steering wheel is turned?
A Using two or three different sector gears depending on design
B Using a variable-length pitman arm

Turn over

C Changing the number of teeth on the worm gear
D Changing the length of the teeth on the sector gear

29. Some vehicles are equipped to signal the computer whenever the power steering pressures increase so that the idle speed can be increased to prevent stalling during turns at low speeds. What component signals the computer?
A Pressure-relief valve
B Power steering pressure switch
C Rotary valve
D Flow control valve

30. The differential lock comes into operation when
A The vehicle is negotiating a bend
B The tyres are worn
C The tyres or road wheels are on a slippery road
D The driver wants the passengers to be comfortable

31. The gear ratio of 25 :1 is
A A direct drive ratio
B An over drive ratio
C A reduction ratio
D A compound ratio

32. The clutch disc is considered free when ;
A It is engaged
B It is disengaged
C In first gear
D The engine is running slowly in traffic congestion

33. Dog clutching on shafts in the gearbox
A permits the secondary shaft to rotate twice as fast as the speed of the engine
B modifies the speed of the primary shaft
C connects up two shafts and makes them to rotate at the same speed
D reinforces the engine speed

34. A four speed gear box which is selected in second gear will
A increase the torque from the engine to the propeller shaft
B decrease the torque from the engine to the propeller shaft
C have four gears in mesh
D turn the second motion shaft in the same direction of rotation as the engine

35. Which of the following is not a major category of friction clutches ;
A Slip clutch
B Disc clutch
C Band clutch
D Cone clutch

36. Gear interlocking devices permit
A To maintain the gear change element in engaged position or neutral
B Assist in the effort of the driver during gear change
C To avoid the selection of two gears during gear changing
D To avoid the selection of two gears during gear changing

37. Which of these is not a design of the steering box
A Steering joint
B Recirculating ball
C Cam and peg
D Cam and roller

38. Which of the following is a type of friction clutch?
A Single plate clutch
B Overrunning clutch
C Electromagnetic clutch
D Centrifugal clutch

39. One type of automotive wheel bearing that withstand radial and thrust loads is the
A rolling bearing
B tapered roller bearing
C ball bearings
D needle roller bearings

40. The clutch cover is bolted to
A flywheel
B pressure plate
C gear box housing
D release bearing

41. Disc brakes use replaceable friction material called
A Linings
B Core
C Pads
D Web

42. Air in the brake lines will cause
A Vibration in the brake pedal during stops
B Low spongy brake pedal
C Brake noise
D Hard brake pedal

43. The six speed transmission commonly used compound planetary gear set is of ;
A Simple gear set
B Simpson gear set
C Spiral gear set
D Hypoid gear set

44. The steering column's pitman shaft is also called the;;
A Sector
B Worm
C Input
D Spline

45. If the top of the steering is tilted 2 degrees toward the rear of the vehicle, this is ;
   A Positive camber
   B Negative caster
   C Negative camber
   D Positive caster

46. 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

47. The type of stress associated with the propeller shaft under normal vehicle operation is;
   A Compressive
   B Tensile
   C Shear
   D Tension

48. A flywheel ring gear has 144 teeth. Moving the crankshaft through a distance of 12 teeth represents an angle of ;
   A 8^0
   B 12^0
   C 15^0
   D 30^0

49. In a hydro-pneumatic suspension system, what is the elastic element ?
   A Oil
   B Gas
   C Liquid
   D Sphere

50. Which of the configuration of epicyclic gearbox will give a forward and fast output speed?
   A Sun gear stationary, ring gear driven and planetary carrier driving
   B Sungear driving, ring gear driven and planetary carrier stationary
   C Sun gear driven, ring gear stationary and planet carrier driving
   D Sun gear stationary, ring gear stationary and planet carrier driving