CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
Technical and Vocational Education Examination

MECHANICAL TECHNOLOGY 1
5140

JUNE XXXX **INTERMEDIATE LEVEL**

Centre No. & Name	
Candidate No.	
Candidate Name	

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

5140 MECHANICAL TECHNOLOGY1 : 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 "**Intermediate Level – 5140 MECAHNINICAL TECHNOLOGY 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. Which of the followings is not a commercial-truck's seating adjustment?

A	Fore and aft seat setting
B	Vertical seat height setting
C	Side to side seat setting
D	Seat squab tilt setting

2. The flywheel is mounted on the

A	front end of the crankshaft
B	front end of the clutch assembly
C	rear end of the crankshaft
D	rear end of the engine block

3. The swept volume in cm^3 of an engine with a bore of 110mm and stroke of 140mm is

A	$0.00133cm^3$
B	$13300000cm^3$
C	$1330cm^3$
D	$133cm^3$

4 During a bump, the shock absorber is said to be on its

A	Rebound stroke
B	Power stroke
C	Compression stroke
D	Extension stroke

5. The multi coil spring clutch is suitable for commercial vehicles because

A	It provides a greater clamping thrust
B	It has several clamping springs
C	It is lighter and less cumbersome
D	It is comparatively cheaper in the market

6. What function does the accelerator pump perform?

A	Meters the fuel to the engine during acceleration
B	Enrich the mixture when accelerating
C	Restrict fuel return during acceleration
D	Opens fuel supply lines when accelerating

7. The common rail system has made it possible for diesel engines to have

A	direct injection
B	indirect injection
C	lower compression ratios
D	lower pressures

8. A situation where the engine and gearbox unit shudders and vibrate when the clutch is released is known as

A	Clutch slip
B	Clutch drag
C	Clutch spin
D	Clutch judder

9. To reduce skidding during braking, modern brake systems are fitted with

A	brake servo assistance
B	auti lock Braking system
C	bleed screw
D	master cylinder

10. A typical two stroke petrol engine has

A	two ports
B	one port
C	four ports
D	three ports

11. What is the stroke length (X) moved by the follower for the pear-shaped cam shown below, given that d1 = 6 mm and d2 = 12 mm

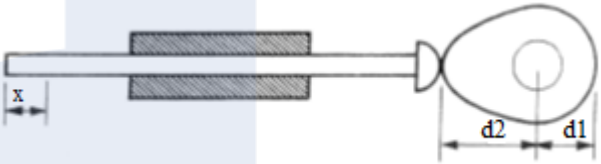

fig.1 cam mechanism

A	18mm
B	24mm
C	12mm
D	6mm

12. A force of 3500N acts horizontally on a car which exerts a downward force of 8000N. what is the resultant force on this car

A	4500N
B	11500N
C	873N
D	8732N

13. Which of the following is not a frame section use on vehicles

A	Flat
B	Channel
C	Turbular
D	Box

14. The middle portion of the connecting rod is called the

A	web
B	shank
C	centre
D	The beam

15. If the fuel supply fails, what is the first item to check?

A	fuel in the engine
B	fuel in the carburettor
C	fuel in the tank
D	fuel in the pump

16. The lay shaft gears in a conventional sliding mesh gear box;

A	Drive the speedometer
B	Are always in constant mesh with the gears on the main shaft
C	Turn in the opposite direction to the engine
D	Turn in the same direction as the engine.

17. Give the item that should be checked first when clutch slip occurs

A	The clearance between clutch plate and fly-wheel
B	The state of wear of the friction material
C	The clearance between the clutch fork and release bearing
D	The state of wear between the flywheel, the plates and the pressure plate

18. What type of universal joint is commonly used on front wheel drive vehicles

A	Constant velocity type
B	Variable velocity type
C	Rubber type
D	Hookes type

19. the amount of tilt measured in degrees from the vertical when a wheel viewed from the side is called

A	Camber angle
B	Castor angle
C	Toe-in
D	Toe-out

20. The ackerman linkage refers to

A	A mechanical brake linkage
B	A connection between two driving shafts
C	A system of steering
D	A type of drive

21. One safety measure in hydraulic brakes systems is

A	the use of two master cylinders
B	the use of flexible pipe lines
C	the use of dual or split line braking system
D	the use of air in the brake line

22. An indication that the brakes is binding is

A	the vehicle fails to roll freely
B	the vehicle is brought to rest faster
C	the braking becomes very hard
D	the drums are swollen

23. The volume of the cylinder above the piston head when the piston is at BDC is

A	Swept volume
B	Clearance volume
C	Engine volume
D	Total volume

24. An oil which has a viscosity range of 20 to 30 according to the SAE is designated as:

A	SAE 30
B	SAE 20
C	SAE 20W/30
D	SAE W20/30

25. The temperature indicating instrument in vehicles indicates the temperature of

A	Engine piston
B	Engine cylinder
C	Engine lubricating oil
D	Jacket cooling water

26. An effect on engine oil when the vehicle is used only on short distances is

A	that consumption will increase
B	that more contaminants are built up
C	that the PCV increases
D	that the oil becomes thicker

27. The purpose of shock absorber is to

A	strengthen the frame
B	damp spring oscillations
C	improve rigidity of spring mountings
D	move laterally

28. The function of the crankshaft is to

A	Convert rotary movement to linear movement
B	Carry the flywheel
C	Hold the piston
D	Convert reciprocating movement to rotational movement

29. Why are some air filters fitted with resonance chambers

A	To trap air
B	To absorb sound waves
C	To filter air
D	To block air

30. Engine oil is obtained from

A	Purified and suitable treated animal fat
B	Purified vegetable
C	Cooked oil
D	Refined minerals

31. Radiation of heat depends on the following except one

A	The difference in temperature between object and surrounding air
B	The surface area from which heat is radiated
C	The material of the object
D	The colour of the air

32. Front wheel drive means

A	The engine is driving the wheels
B	The engine and transmission are mounted transversely across the front of the vehicle
C	The engine and transmission are aligned to the length of the vehicle
D	The rear wheels are driving the front wheels

33. Stopping distance and tyre adhesion depends on the following except one

A	Design of tyres
B	Construction of tyre
C	Type of vehicle
D	Condition of surface

34. During idling, a petrol engine requires

A	Rich mixture
B	Lean mixture
C	Lean but rich mixture
D	Rich but lean mixture

35. The period of time between injection and the inertial burning of fuel in the compression ignition engine is called

A	Flame spread
B	Ignition delay
C	Diesel knock
D	Flash time

36. A rotating shaft is in the state of balance when the centre of gravity is situated on the

A	Circumference
B	Axis of rotation
C	Heaviest side
D	Lightest side

37. The sliding joint which is sometimes fitted to the propellershaft allows for

A	Variation of propellershaft torque
B	Expansion of propellershaft due to heat
C	Twisting of the propellershaft
D	Variation in distance between the gearbox and rear axle

38. When the frictional material of the clutch disc wears, the free pedal movement

A	Reduces
B	Increases
C	Annuls
D	Does not change

39. synchronisation in the gearbox

a	transmit rotative movement from one pinion to another
b	transmit linear movement of the pinions on the shaft
c	equalises the rotational speed of the pinion of two parallel shafts to be meshed in order to facilitate gear shifting
d	automatically gives gear change

40. One of the advantages claimed for a sealed cooling system is it

A	absorbs moisture
B	encourages periodic topping up
C	increases corrosion
D	eliminates coolant loss by expansion

41. In a diesel engine the unit that controls fuel delivery at all engine speeds and loads is the

A	injection pump
B	delivery valve
C	governor
D	injector

42. One of the advantages of the electronic fuel injection (EFI) system is that

A	it is cheaper to manufacture
B	repairs on the engine are change
C	it reduces atmospheric pollution
D	it has long life

43. During induction stroke of a four stroke compression ignition engine,

A	Air only is admitted in to the engine
B	Fuel only is admitted in to the engine
C	Cylinder pressure increases
D	Cylinder volume decreases

44. Another name for idling circuit is

A	Cold start circuit
B	Slow running circuit
C	Compensating jet circuit
D	Constant vacuum depression circuit

45. A liquid that boils at a relatively high temperature is said to have a

A	low viscosity
B	high viscosity
C	high volatility
D	low volatility

46. The engine is usually supported by the frame with

A	four or five supports
B	one or two supports
C	three or four supports
D	two or here supports

47. Which of the following layout is not used in the motor vehicle

A	Front engine front drive
B	Front engine rear drive
C	Rear engine front drive
D	Rear engine rear drive

48. The type of air cycle used in diesel engine is called

A	Otto cycle
B	Cannot cycle
C	Diesel cycle
D	Rankine cycle

49. As the number of cylinders in multi cylinder engine increases, the power to weight rate

A	Remains the same
B	Increases
C	Becomes zero
D	Decreases

50. The ring gear is mounted on the

A	Differential housing
B	Differential carrier
C	Differential case
D	Axle housing