

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
Technical and Vocational Education Examination



7170 Electrical and Electronic Systems 1

JUNE XXXX

ADVANCED LEVEL

Specialty(Specialty Code)	
Centre No.	
Centre Name	
Candidate No.	
Candidate Name	

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

7170 Electrical and Electronic Systems 1: MULTIPLE CHOICE QUESTION PAPER

One and a half hours

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 – 7170 Electrical and Electronic Systems 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 crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.
6. **Answer ALL questions**
7. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide on 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. Texts, notes and pre-prepared materials of any kind are also **NOT** allowed in the examination room.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet after. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

Turn Over

XXXX/7170/1/C

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1. The function of the zener diode in the electronic control unit of an alternator is to act as a

A	Current amplifier
B	Voltage amplifier
C	Voltage switch
D	Current switch

2. The starter component tested with a growler is the:

A	field coils
B	armatures
C	commutator
D	solenoid

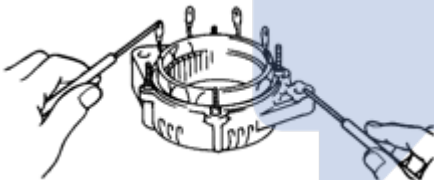
3. A bulb rated 12V 36W will consume:

A	1/3 amps
B	3 amps
C	14 amps
D	48 amps

4. Before taking the battery off charge, which one of the following actions should be taken?

A	The battery charger should be switch off
B	A hydrometer reading of each cell should be taken
C	The terminals should be checked
D	The cell stoppers should be refitted

5. Identify the test name below



A	Stator to frame insulation test
B	Stator winding resistance test
C	Rotor winding resistance test
D	Rotor to frame insulation test

6. The wattage of a stop light bulb is normally

A	5W
B	6W
C	12W
D	21W

7. A Darlington transistor switch:

A	higher current
B	higher voltage
C	higher resistance
D	higher interest

8. The fuel injector solenoid is energized by the:

A	ignition switch
B	computer

C	airflow sensor
D	ignition module

9. The total resistance of two resistors of 60 ohms and 40 ohms connected in parallel

A	16 Ohms
B	100 Ohms
C	24 Ohms
D	20 Ohms

10. Deep cycling means:

A	Overcharging the battery
B	Overfilling or under-filling the battery with water
C	The battery is fully discharged and then recharged
D	The battery is overfilled with acid

11. Star and Delta are types of

A	Rotor windings
B	Stator windings
C	Field windings
D	Regulator winding

12. Units of Metric wire size are measured in.

A	meters
B	cubic centimeters
C	square millimeters
D	cubic millimeters

13. The sum of the voltage drops in a series circuit equals the:

A	Individual voltages
B	Source voltage
C	$\frac{\text{Source voltage}}{\text{Voltage drop}}$
D	$\frac{\text{Voltage drop}}{\text{Source voltage}}$

14. The approximate electric current used by a 12 volts wiper motor when it is in proper working condition is

A	1.5-4A
B	15-40A
C	0.15-0.4A
D	6A

15. Headlamp circuit relay is to:

A	take the load off the control switch
B	add the load of the control switch
C	maintain circuit voltage
D	reduce circuit voltage

16. Which of the following will not affect the resistance of a conductor?

A	Type of material
B	Length of conductor
C	Physical condition of conductor

D	Density of material
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17. A short circuit can be located using:

A	Test light
B	Gauss gauge
C	Tone generator
D	Short gauge

18. What is a thermistor?

A	It is a temperature sensor
B	Used regulating engine temperature
C	Controls passengers temperature
D	It is a new type of transistor

19. During a starter current draw test, the current draw is more than specified and cranking voltages are less. What is the cause?

A	Worn bushings in the stator motor
B	High resistance in the field windings
C	High resistance in the battery +ve
D	A burned solenoid

20. Which of the following circuits is an example of a series parallel circuit?

A	Instrument panel lights
B	Backup lights
C	Horn
D	headlamps

21. An asymmetric headlight gives a:

A	Whiter light
B	Dim-dip facility
C	Diverging beam pattern
D	Sharp cut-off line when on dip

22. A conventional incandescent bulb filament is made from:

A	Halogen
B	Tungsten
C	Quartz
D	Non-resistive wire

23. A window lift drives through a worm gear because this

A	increases speed and torque
B	reduces speed and torque
C	increases speed and reduces torque
D	reduces speed and increase torque

24. Which of the following is the LEAST likely cause for an inoperative retractable headlight door?

A	Defective headlight motor
B	Loose or broken vacuum lines
C	A poor headlamp ground

D	A faulty limit switch
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25. The type of charge possessed by an electron is:

A	Negative
B	Positive
C	Molecular
D	Gravitational

26. The purpose of the regulator is to:

A	prevent the alternator voltage from going too high
B	allow the alternator to produce a high current
C	keep alternator speed from going too high
D	keep the alternator voltage high enough to charge the battery

27. Cigar lighter requires repeated fuse replacements. The cause could be

A	high resistance in the lighter element
B	high resistance connector on the lighter element
C	a shorted lighter element
D	a grounded wire between the lighter and the chassis

28. Electrically operated windows are operated by:

A	Linear motors
B	By induction motors
C	Permanent magnet motors
D	Powerful solenoids

29. When current goes to the earth without passing through a consumer it is said to be:

A	A grounded circuit
B	An earthed circuit
C	A short circuit
D	A Series circuit

30. A dirty electrical connection is likely to cause a:

A	high resistance
B	low resistance
C	short circuit
D	open circuit

31. which of the following bulbs is suitable for use with a 12 V supply:

A	36 W, 3A
B	48 W, 2A
C	24 W, 4A
D	10 W, 0.5A

Turn Over

32. The ability of a battery to supply a current similar to that required by the starter motor is tested by:

A	a wide scaled hydrometer
B	a high rate discharge tester
C	a voltmeter scaled 0-200V
D	an ammeter scaled 0-100A

33. Pre-engaged starter motor windings that enable the engagement of the pinion are called:

A	Hold in windings
B	Pull in windings
C	Armature windings
D	Commutator windings

34. The resistance of a shunt field in ohms:

A	varies according to design
B	increase with temperature rise
C	decrease with temperature rise
D	remain constant

35. The gases given off by a lead-acid battery nearing the end of its charge are:

A	oxygen and nitrogen
B	oxygen and hydrogen
C	helium and hydrogen
D	nitrogen and hydrogen

36. A diode trio in an alternator:

A	Increase voltage to the battery
B	directs current to charge the battery
C	Allow current to flow in two directions
D	Directs current to the field windings

37. Automobile batteries are designed primarily to provide high current to:

A	the distributor
B	the ignition switch
C	the starter
D	the voltage regulator

38. When an ohmmeter reads infinity it implies:

A	a short circuit
B	an open circuit
C	series circuit
D	a continuous circuit

39. What law of electricity states that the amount of chemical change produced by current at an electrode-electrolyte boundary is proportional to the quantity of electricity use?

A	Coulomb's Law
B	Kirchoff's Law
C	Ohm's Law
D	Faraday's Law

40. Which of the following is not a function of the starter solenoid?

A	Serves as a heavy duty relay for current to flow to the starter motor
B	Sends a signal to the ECU when the starter is turning
C	Actuates the lever that slides the pinion drive gear forward
D	Houses the pull-in coil and hold-in coil

41. The cables between the battery and the starter motor must be as short as possible to

A	provide voltage drop
B	Avoid voltage drop
C	prevent current drop
D	Avoid arcing

42. Electrical circuits are presented as, principle diagrams, wiring diagrams or:

A	current diagrams
B	normalised diagrams
C	power diagrams
D	pnstallation diagrams

43. One type of electronic control module is:

A	Hall effect type
B	Photo type
C	Capacitor discharge type
D	Constant energy type

44. In a distributor of an electronic ignition system, the part which rotates to generate impulses is called a:

A	rotor
B	impeller
C	reluctor
D	module

45. A component which makes use of the magnetic effect of an electric current is:

A	An ignition warning
B	An alternator rotor
C	A fuel tank unit
D	An oil pressure gauge

46. High rate discharge test duration should not exceed:

A	10 seconds
B	30 seconds
C	50 seconds
D	70 seconds

47. A starter motor planetary gear set:

A	modifies the speed characteristics only
B	modifies the speed characteristics only
C	c. modifies the speed and torque characteristics
D	has no effect on the speed or torque characteristics

48. Light emitting diodes (LEDs) in vehicle lighting has:

A	a short life and whiter light
B	a long life and red light
C	a short life and red light
D	a long life and whiter light

49. The wiper motor speed is at maximum when the (+ve) and (-ve) brushes are placed at:

A	45° apart
B	60° apart
C	90° apart
D	180° apart

50. A pre-engaged starter motor pull-in winding:

A	hold the pinion in mesh
B	pull the pinion out of mesh
C	hold the pinion out of mesh
D	pull the pinion into mesh

NOW GO BACK AND CHECK YOUR WORK