

JUNE 2022

INTERMEDIATE LEVEL

Specialty Name and Acronym	<b>AUTOMOBILE REPAIR MECHANICS (ARM)</b>
Centre No. & Name	
Candidate No.	
Candidate Name	

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

**5135 ELECTRICITY AND ELECTRONIC TECHNOLOGY 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.**

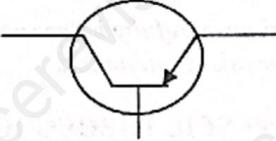
*Before the examination begins:*

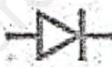
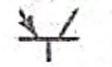
3. Check that this question booklet is headed "**Intermediate Level – 5135 ELECTRICITY AND ELECTRONIC TECHNOLOGY 1.**"
4. Insert the information required in the spaces above.
5. Insert the information required in the spaces provided on the answer sheet using your HB pencil:  
**Candidate Name, Exam Session, 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. Battery cables are made of heavy gauge wire because
- they must withstand engine heat.
  - they must carry high electrical current.
  - they must provide a good electrical contact.
  - smaller gauge wire breaks too easily.
- 
2. Automobile electronic systems are to be tested with :
- Test lamp
  - Multimeter
  - Feeler gauge
  - Dial indicator
- 
3. The ignition switch Start Position is
- a momentary contact position.
  - adented position.
  - a spring loaded switch.
  - a bolt and spring washer loaded position.
- 
4. The grid material of a maintenance free battery is alloyed with
- antimony.
  - silicon.
  - cadmium.
  - calcium.
- 
5. For current to flow and produce useful work, every circuit must have
- capacitance.
  - inductance.
  - resistance.
  - reluctance.
- 
6. Electron energy becomes useful electricity when
- the negative charge is high enough.
  - the positive charge is high enough.
  - atom share many valence electrons.
  - all free electrons are forced to move in one direction from point to point.
- 
7. One type of starter motor is
- initialengagement motor.
  - inertiaengagement motor.
  - engagement motor.
  - excited motor.
- 
8. In an alternator, alternating current is converted to direct current by the
- stator.
  - brushes.
  - rectifiers.
  - regulator.
- 
9. Some electrical components are attached to the vehicle by means of flexible mounting so that
- the vehicle's weight is kept to the minimum.
  - they are electrically insulated from other components.
  - the effects of vibration from other vehicle parts is reduced as much as possible.
  - heat losses from the components are minimized.
- 
10. The magnetic pull exerted by a solenoid depends on
- the diameter of the wire.
  - the length of the wire.
  - the iron in the circuit.
  - the ampere turns.
- 
11. In which component are thermistors used?
- Fuel gauge sending unit
  - Oil pressure sending unit
  - Coolant temperature sensors
  - Temperature switches
- 
12. The transposed formula for I from  $W=I^2R$  is
- $\sqrt{W/R}$
  - $W/R$
  - $\sqrt{WR}$
  - $W+R$
- 
13. What type of transistor is shown below?
- 
- JPET
  - Darlington pair
  - PNP bi-polar
  - NPN bi-polar
- 
14. Voltage polarity means
- magnetic polarity.
  - current direction.
  - the direction of sine wave voltage.
  - voltage cycle.
- 
15. The magnetic field in an alternator is developed in the
- stator.
  - rotor.
  - armature.
  - casing.
- 
16. A battery cell in a normal state of charge is
- 3volts
  - 2.5volts
  - 2.2volts
  - 2.9volts
- 
17. What is the relationship between magnetism and electricity?
- Magnetism is required to make electricity.
  - A magnetic field surrounds a conductor with current flowing through it.
  - A magnet requires electrical current flow.
  - A magnet has the same atomic structure as copper, making it a good conductor.
- 
18. When the resistance in a 12-volt automotive circuit increases, what happens to current flow in the circuit?

- A It stops.  
B It decreases.  
C It increases.  
D Nothing.
- 
19. Checking for trouble codes is part of  
A verifying the problem.  
B analysing the problem.  
C finding the cause.  
D repairing the problem.
- 
20. A battery's reserve capacity is measured in \_\_\_\_\_.  
A amperes  
B watts  
C amperes-hours  
D minutes
- 
21. In which of the following alternator components is the electric current produced?  
A Stator.  
B Rotor.  
C Rectifier.  
D Regulator.
- 
22. What causes the solenoid plunger to return to its normal position when voltage is stopped in the starter motor?  
A Magnetic force.  
B Gravity.  
C Spring pressure.  
D Centrifugal force.
- 
23. As the magnetic solenoid switch operates, the contact in the switch becomes connected to each other by  
A a heavy wire.  
B a plunger.  
C an iron core.  
D a contact disk.
- 
24. The drive pinion in the overrunning clutch is moved into mesh for cranking action by  
A pinion inertia.  
B over running clutch.  
C shift lever.  
D an idler gear.
- 
25. Which numeric sequence is in the correct descending order?  
A Nano, Pico, Micro, Milli  
B Milli, Micro, Kilo, Mega  
C Tera, Giga, Mega, Kilo  
D Kilo, Mega, Tera, Giga
- 
26. Why is copper commonly used in the construction of cables?  
A It has a low resistivity value which makes it a good insulator.  
B It has a high resistivity value which makes it a good conductor.  
C It has a high resistivity value which makes it a good insulator.  
D It has a low resistivity value which makes it a good conductor.
- 
27. Which instrument is used to measure the specific gravity of the electrolyte?  
A A multimeter.  
B An ammeter.  
C A volt meter.  
D A hydrometer.
- 
28. The electrical behaviour in a circuit is influenced by  
A design of the circuit, size of the conductors and types of control devices.  
B number and types of load devices.  
C impedance.  
D internal circuit resistance.
- 
29. Electrolyte is a mixture of distilled water and  
A sulphuric acid.  
B chlorhydric acid.  
C potassium.  
D uric acid.
- 
30. At very low pressures the engine oil pressure warning lamp  
A goes off.  
B stays on.  
C blinks.  
D flickers.
- 
31. What attention do spark plugs require?  
A Burn it every week and clean with fuel.  
B Remove every week and brush with fuel.  
C Clean about every 5000miles and adjust the gap.  
D Clean about every 30 days and adjust clearance.
- 
32. For the battery marking 12V-75AH-600A, the 600A represents  
A the charging current.  
B the internal circuit current.  
C the cold start current.  
D the battery's capacity.
- 
33. Which of the following component play the role of a relay switch in an electronic circuit?  
A   
B   
C   
D 
- 
34. The law which states that; the current flowing into a junction of a circuit must be equal to the current flowing out of the junction is  
A the ohms law.  
B the current law.  
C the Kirchhoff's law.  
D the faraday's law.
-

35. A material which allows current to flow in one condition and restrict in another condition is called
- a conductor.
  - a semi-conductor.
  - a resistor.
  - an insulator.

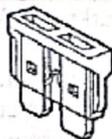
36. When the starter motor in a vehicle does not crank the engine, the first thing to check is the
- battery.
  - wiring and cables.
  - solenoid.
  - starting motor.

37. The function of bushes used in a starter motor is to
- enable the armature to rotate freely.
  - enable the stator to rotate freely.
  - disallow the armature from rotating freely.
  - disallow the stator from rotating freely.

38. When doing an Open-Circuit Voltage Test on a fully charged battery, an acceptable reading would be
- 9.6 volts.
  - 11.5 volts.
  - 12.6 volts.
  - 15.3 volts.

39. Self-induced current is obtained when
- a conductor conducts current.
  - a conductor is fixed in a magnetic field.
  - a conductor is moved in a magnetic field.
  - a conductor discharge current.

40. What type of fuse is shown below?

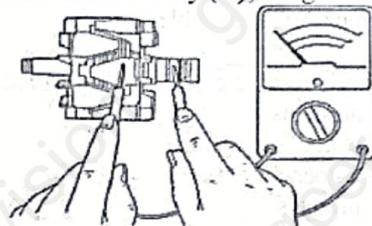


- Blade type.
  - Cartridge type.
  - Glass type.
  - Ceramic type.
41. A relay can be thought of as a
- remote controlled switch.
  - magnetic resistor.
  - non-magnetic capacitor.
  - heating device.
42. When removing a battery, the earth terminal should always be disconnected first because
- the circuit would still be a closed circuit.
  - the mechanic could receive a shock.
  - it reduces the chance of a short circuit.
  - the battery will discharge quicker.
43. The function of the ignition coil is to
- produce the spark.
  - to burn the air/fuel mixture.
  - produce the high voltage.

- D ignite the spark plug.

44. The direction indicator lights are also called?
- Hazard lights.
  - Turn signal lights.
  - Side lights.
  - Corner lights.

45. In the grounded circuit check shown below, if the ohmmeter reads infinity ( $\infty$ ), it signifies that



- the rotor is defective.
- the rotor is shorted.
- the rotor is not defective.
- the fieldwindings are shunted.

46. When a part of a circuit reduces the amount of current that can flow we term it
- open circuit.
  - short circuit.
  - high resistance.
  - high current.

47. The SI unit for power is
- Joule.
  - Watt.
  - Newton.
  - Horse power.

48. Ohms law states that the current passing through a wire at constant temperature is proportional to the
- power supplied.
  - length of the wire.
  - resistance of circuit.
  - potential difference between its ends.

49. A 12V lead-acid battery has
- cells connected in parallel, plates connected in series.
  - cells connected in series, plates connected in parallel.
  - cells connected in series, plates connected in series.
  - cells connected in parallel, plates connected in parallel.

50. The electrolyte of a fully charged battery has a relative density of approximately
- 1.000
  - 1.100
  - 1.280
  - 1.500

**STOP**

**NOW GO BACK AND CHECK YOUR WORK**