

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
 Technical and Vocational Education Examination



ELECTRICAL AND ELECTRONIC SYSTEMS 1
7135

JUNE XXXX

ADVANCED LEVEL

| | |
|-------------------|--|
| Centre No. & Name | |
| Candidate No. | |
| Candidate Name | |

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

7135 ELECTRICAL AND ELECTRONIC SYSTEMS 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.

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

Before the examination begins:

- Check that this question booklet is headed “Advanced Level – 7135 ELECTRICAL AND ELECTRONIC SYSTEMS 1
- Insert the information required in the spaces above.
- 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:

- Answer **ALL** the **50** questions in this Examination. All questions carry equal marks.
- 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]

- 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.
- 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.
- Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.
- 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. What happens when a magnetic field moves across a conductor, or when a conductor is moved through a magnetic field?
 - A Flux is created
 - B Current is induced in the conductor
 - C Spark is produced
 - D The conductor is deflected

2. Colour coded cables are used in vehicle circuits and wirings in other to
 - A enable a variety of cable colours in use
 - B increase cable life
 - C identify particular cables during fault finding
 - D prevent the use of only one type of cable

3. A relay is a
 - A Remote controlled switch
 - B Magnetic resistor
 - C Non-magnetic capacitor
 - D Heating device

4. The charging method indicated below is



Figure 1

- A Constant current.
- B Constant Voltage.
- C Varying current.
- D Varying resistance.

5. The internal resistance of a battery
 - A decreases with age.
 - B increases as the relative density decreases.
 - C restrict capacity.
 - D should be as high as possible.

6. The sedimentation trap in the lead-acid battery prevents
 - A open circuits of plates.
 - B short circuit between the cells.
 - C short circuit between the cells plates.
 - D open circuit between the cells plates

7. Two methods in which EMF is induced without movement of parts are by
 - A mutual and magnetic induction.
 - B self and magnetic induction.
 - C magnetic and cross induction.
 - D self and mutual induction

8. The thermistor mounted on the evaporator fins of the A/C circuit has as function to;
 - A Sense the pressure of the air passing through the fins.
 - B Sense the volume of the gas passing through the fins.
 - C Sense the temperature of the air passing

through the evaporator.

- D Sense the pressure of the gas passing through the evaporator.

9. The schematic partial view of the blower motor in Figure 3 below works only with the blower switch in the number 4 position. This could be caused by a failed

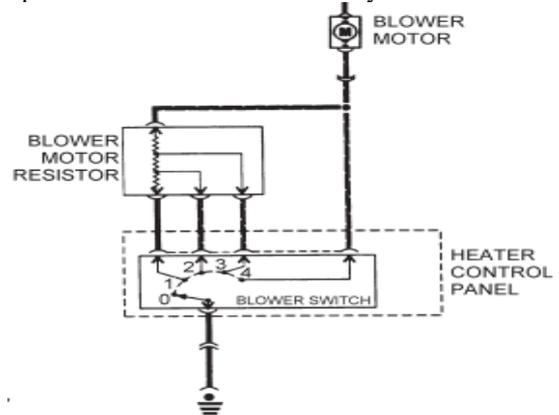


Fig.3

- A Blower motor.
- B Blower motor ground.
- C Blower motor heat control panel.
- D Blower motor resistor.

10. They relay shown in figure below is

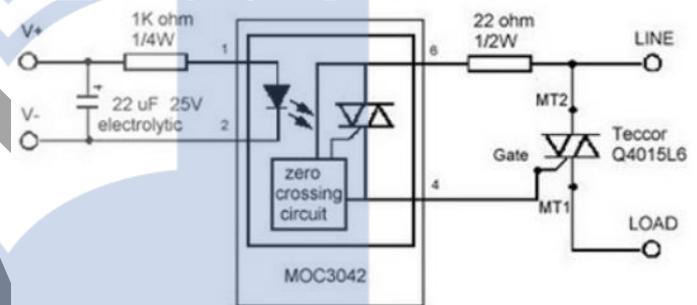


Fig. 4

- A A photo coupled solid state relay.
- B Electrolytic solid state relay.
- C Transistorized electronic relay.
- D Transistorized solid state relay

11. The core of transformer coil is constructed from laminations so as to;
 - A Increase eddy current
 - B Reduce power losses
 - C Reduce the purchasing power
 - D Increase the number of turns

12. With the ignition switch on, a hall effect pulse generator in an ignition distributor will produce an output voltage when the
 - A engine is running
 - B engine is cranking
 - C hall chip is shielded
 - D hall chip is not shielded

13. The core of transformer coil is constructed from laminations so as to
 - A increase eddy current

- B reduce power losses
- C reduce the purchasing power
- D increase the number of turns

- A interference or stray capacitance
- B backup power
- C movement rate of the car
- D speed at which inflation takes place

14. High speed cut-off in a coil ignition system occurs when the

- A spark output is not sufficient due to engine speed
- B spark output is excessive due to high engine speed
- C ignition period has delayed
- D rotor arm is too fast to distribute the spark

22. The range of a head lamp shows

- A how precise a headlamp is.
- B the distance at which the headlamp beam still has a specified luminous intensity
- C the longest distance that a headlamp beam can access
- D the ratio of luminous and non-luminous dimension

15. If a circuit is tested and the result is an open circuit, it means:

- A The resistance is nil
- B The voltage is nil
- C The power is nil
- D The reluctance is nil

23. The symbol below represents a:

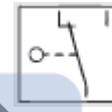


Fig 6

16. On which element is e.m.f induced in an alternator?

- A On the stator
- B On the rectifier diodes
- C On the regulator
- D On the rotor

- A Throttle valve switch
- B Thermal switch
- C Trigger switch
- D Double make contact switch

17. The device that causes the windscreen blades to go rest when switched off is called:

- A Main switch
- B Motor switch
- C Limit switch
- D Wiper rest switch

24. In the air conditioning the refrigerant is a low-pressure gas at

- A Condenser outlet
- B Evaporator inlet
- C Evaporator outlet
- D Condenser inlet

18. Impedance restricts

- A Current flow
- B Voltage flow
- C Capacitance flow
- D Resistance flow

25. The wiper control unit delay time is set by a resistor and

- A An inductor
- B A transistor
- C A diode
- D A capacitor

19. An OR logic gate is applied in:

- A The headlamp wiring
- B Ignition wiring
- C Windscreen wiper wiring
- D The starter motor's wiring

26. The material that absorbs moisture inside the air conditioning system is called ;

- A Drier
- B Desiccant
- C Ester
- D PAG

20. The speed of the wiper motor mounted with permanent magnets is maximum when the (+ve) and (-ve) brushes are placed at:

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

27. Identify the type of test below

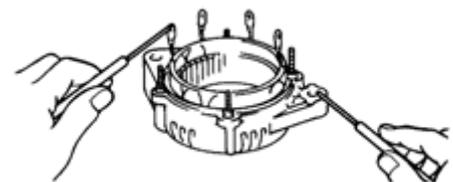


Fig. 7

21. Impact sensors in a car's Airbags circuit senses

Turn over

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

28. Star and Delta are types of ;
- A Rotor winding
 - B Stator winding
 - C Field winding
 - D Regulator winding

29. A conventional incandescent bulb filament is made from
- A Halogen
 - B Tungsten
 - C Quartz
 - D Non resistive wire

30. The unit that contains the hold-in winding and the pull-in winding is;
- A Field coil
 - B Starter solenoid
 - C Armature
 - D Ignition switch

31. Flasher unit flash at different rate when :
- A The battery is fully charge
 - B The flasher unit is blown
 - C The bulb is blown
 - D Negotiating a bend

32. Carbon and silicon are examples of :
- A semiconductor
 - B Conductor
 - C insulator
 - D Photoelectric materials

33. A Darlington transistor switch
- A Higher current
 - B Higher voltage
 - C Higher resistance
 - D Low resistance

34. An integral electronic ignition
- A Needs two contacts points
 - B Need one contact point
 - C Does not need a contact points
 - D Does not need contact points nor plug

35. An overrunning clutch will drive the pinion gear in one direction and allow the _____ in the other direction
- A engage
 - B Free wheel
 - C Energise the
 - D crank

36. The output voltage of a charger is :
- A Less than battery voltage
 - B The same as battery voltage
 - C Higher than battery voltage
 - D Exactly 12 volt

37. On modern vehicles, what replaces the voltage regulator
- A Power train control module (PCM) or body control module (BCU)
 - B Electronic control module
 - C Warm up regulator
 - D Transistor

38. The diode used in the lighting system for illumination is called;
- A Photo diode
 - B Zener diode
 - C Schottky diode
 - D Light emitting diode

39. One of the characteristic of the thermal-type fuel gauge is its
- A slow moving needle
 - B almost instantaneous response
 - C need for a reed switch
 - D availability to be used as oil pressure measurement

40. Electrically operated windows are operated by :
- A Linear motors
 - B Semi linear induction
 - C Reversible permanent magnet
 - D Powerful solenoid

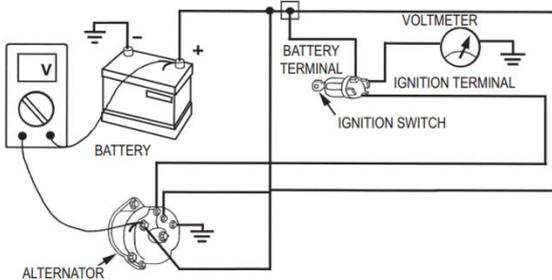
41. One safety hazard associated with gas discharged lamps is related to the
- A use of high voltage
 - B use of kryptonite
 - C length of time to cold down
 - D length of time to discharge

42. Head light reflector, using the principles of reflection ;if the light source (reflector) is position between the focal point and the reflector the reflected light will be :
- A Parallel to the principal axis
 - B Diverge along the principal axis
 - C Converge toward the principal
 - D At the focal point

43. A primary cell
- A is a dry cell.
 - B polarized rapidly when current is flowing.
 - C must never be connected in series with another cells
 - D was the first type of cell to be constructed

44. The value of the EMF induced by a conductor moving across a magnetic field depends on the :
- A Speed of movement of the conductor.
 - B Speed of the magnetic field.
 - C Current supplied to it.
 - D Voltage supplied to it

45. In the charging system shown in figure below, with the engine running the digital Multimeter will display:



- A Charging output voltage.
 - B Regulator operating voltage.
 - C Charging circuit voltage drop.
 - D Ignition switch voltage drop
46. With the A/C system operating at an ambient temperature of 85°F the low pressure gauge reads 5psi and the high pressure gauge reads 105Psi. What do these readings indicate?
- A Normal operation.
 - B A low refrigerant level.

- C A restriction on the high side.
- D Broken compressor reed valves

47. The two types of head lamp reflectors are
- A Parabolic and parallel
 - B Bi-focal and polyfocal
 - C Trifocal and bifocal
 - D Homifocal and bifocal

48. When do we experience the influence of impedance in direct current circuits?
- A At switch OFF
 - B At switch ON
 - C At load ON
 - D At load OFF

49. In an alternator the magnets are:
- A permanent
 - B stationary
 - C rotary
 - D double

50. A Zener diode :
- A Limits the flow of current
 - B Permits the flow of current only at a predetermined value
 - C Controls the voltage regulator
 - D Breaks Zener voltage in a circuit