

GENERAL CERTIFICATE OF EDUCATION BOARD

Technical and vocational Education Examination

Electrical/Electronic Technology

5135

JUNE XXXX

INTERMEDIATE LEVEL

Specialty (Specialty Code)	Automobile Repair Mechanics (ARM)
Subject Title	ELECTRICAL AND ELECTRONIC TECHNOLOGY
Subject Code	5135
Paper No	3

PART I
FAULT TRACING

Time: **One Hour****INSTRUCTIONS TO SUPERVISORS ONLY**

Candidates shall choose by ballot one question from the list of **THREE** main electrical and electronics systems, the charging system, lighting system, and the wiper motor circuit.

- ❖ Examiners shall simulate one fault on each of these systems.
- ❖ They should however ensure that the engine is in good working order before the simulation is carried out.
- ❖ Candidates should be reassured of the good working order of the engines on which they will perform the fault tracing.
- ❖ Examiners should closely watch the candidates during their work so that the method used is marked accordingly.
- ❖ Examiners should closely watch the candidates and **INTERVENE IF NEED BE** during the fault tracing. This is to avoid damages that may be caused by the candidate.
- ❖ In case of any disorder in their work that might lead to damage or injury, the examiners should immediately stop the candidates.
- ❖ All fault tracing forms must be corrected or marked in front of the candidates so that coherence in the method and onward skills can be objectively evaluated.
- ❖ Examiners shall ask questions in relation to each candidate's work without necessarily intimidating or frustrating the candidate.
- ❖ The list of proposed faults to be simulated is found below:
 - This part is made up of three main sections (A), (B) and (C), each section is comprised of four topics.
 - By ballot, the candidate is expected to choose a topic either under section A, B, or C.
 - The examiner(s) shall provide the candidate with ALL the necessary working materials.
 - All the candidates are expected to answer the oral written questions at once before proceeding to the practical phase.
 - The written exercise must not EXCEED 15minutes
- ❖ Ensure that candidates should hand in their answer booklet.

SECTION A: Starting system (15 minutes)

- 1- Remove the fan belt
- 2- Insulate the battery terminal
- 3- Create an open circuit
- 4- Fit an uncharged battery.

SECTION B: Horn Circuit (15 minutes)

- 1- Disconnect the battery's positive terminal
- 2- Fit a bad horn switch
- 3- Fit a bad horn relay
- 4- Create an open circuit

SECTION C: Ignition System (15 minutes)

- 1- Fit a discharged battery
- 2- Interchange firing order.
- 3- Fit a bad spark plug
- 4- Remove rotor cap

N.B: The candidate is expected to trace all the faults and put back the circuit in a functional state.
This section **MUST ONLY** be handled by the examiners.

Turn Over

PART II REPAIRS AND MEASUREMENTS

Time: **Two Hours**

INSTRUCTIONS TO SUPERVISORS

The candidates shall choose by ballot in the presence of the examiners, one of the components on the list “**A**” and “**B**”. Each number chosen by ballot corresponds simultaneously to the number on list the “**A**” for repairs and on the list “**B**” for measurement.

An example: If a candidate chooses figure 1 in the ballot, it automatically corresponds to:

- A, the starter motor for “Repairs ”
- B, Battery “Measurements”
- ❖ At the end of the first work post, that is repairs, the candidate shall answer **THREE** questions from the examiners, chosen among the set of questions given below.
- ❖ For the second part, that is measurements, the examiners shall ask **THREE** questions of their choice, in relation to the component chosen on the work post.

The marking of tables 1 and 2 shall be done in front of the candidate’s work post in order to verify the exactness of the latter’s work.

Table of list A and B

Nº	List A	List B
1	Starter motor	Battery
2	Wiper motor	Relay
3	Alternator	Flasher unit
4	Electric window motor	alternator
5	Ignition distributor	Ignition coil

Proposed questions (these must not be kept within the reach of the candidates)

1. Outline the method of work on this component and precise the necessary tools to be used.
2. State two regular faults that likely occur on this component.
3. State the origin of each fault.
4. Explain how you would remedy the faults when noticed.
5. What advice will you give to the user to prevent and or increase the working life span of the component?