

Federal University of Technology, Minna.
Department of Industrial and Technology Education

Session: 2019/2020 Second Semester Examination
Course Title: Auto-Electrical System and Air-Conditioning
Course Code: ITE 528
Time Allowed: 2 Hours
Instruction: Attempt four (4) Questions Only

- 1a. What is the purpose of the alternator?
- 1b. What are the criteria that the charging system must meet when the engine is running?
- 1c. Make a table and identify three (3) common symptoms and faults of the charging system malfunction

- 2a. Explain five (5) other requirements of the battery apart from serving as a source of energy in the vehicle when the engine, and hence the alternator, is not running.
- 2 b. List six (6) considerations when deciding where a vehicle battery should be positioned
- 2c. Apart from the speed of the chemical reaction, what are the other factors that determines the rate at which a battery produces current?

- 3a. With the aid of a simple sketch describe the principle of operation of the coil ignition system
- 3b. What is the heat range of a spark plug?
- 3c. List the factors that determine the thermal capacity of a plug

- 4a. Describe the operation of an air conditioning system.
- 4b. Make a clearly labelled sketch to show the main components of an air conditioning system
- 4c. List four process testing procedure for checking an air conditioning system

- 5a. What is the main purpose of light in a vehicle?
- 5b. Sketch and explain the procedure for carrying out head lamp alignment manually
- 5c. Identify two (2) vehicle central door defects and action to be taken remedy the defects

- 6a. List four (4) types of air-conditioning compressors
- 6b. List five (5) functions of the compressor in an air conditioning system
- 6c. State six (6) properties and characteristics of refrigerant oil