

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA  
SCHOOL OF TECHNOLOGY EDUCATION  
DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION  
SECOND SEMESTER 2012/2013 SESSION EXAMINATION

COURSE CODE: AUT 522  
COURSE TITLE: AUTO ELECTRICAL SYSTEM & AIR CONDITIONING (2 UNITS)  
TIME ALLOWED: 2 HOURS  
INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS.  
Each question carries equal marks

- 1(a) Enumerate briefly on the following:  
i) Transducer ii) Rotor iii) Sensor iv) Diode  
v) Heat Sink  
(b) State Three (3) factors that affect the evaporator's design  
(c) What is dwell angle of a distributor?
- 2 (a) Describe the distinctions between Inertial Drive and pre-engaged Drive of starter motors.  
(b) What is capacity of a lead – acid battery?  
(c) State at least five (5) safety rules that must be observed concerning air conditioning system
- 3 (a) State two (2) functions on each of the following: i) Heater Core or Thermostat expansion valve ii) Compressor iii) Sight Glass  
(b) Describe the fundamental difference between computerized and transistorized ignition system  
(c) Mention at least five (5) preliminary checks that must be made before wheel alignment and steering angles operation.
- 4 (a) State four (4) conditions in which the variation of specific gravity depend.  
(b) With the aid of a diagram, describe the principles of refrigeration cycle.  
(c) State three (3) main objectives that automobile headlamps must fulfill
- 5(a) State five (5) properties of refrigerant oil in Auto-air conditioning  
(b) State two (2) main classifications of auto-electric horns and describe the principle of operation of one with a good sketch.  
(c) What is ABC of driving?
- 6(a) Enumerate briefly on the process of ionization  
(b) State the main three (3) features that identify spark plug and illustrate with a sketch  
(c) Discuss the process in which an intermittent flow of current to the indicator lights of a flasher unit is produced.