



NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS
SCHOOL OF SCIENCE AND TECHNOLOGY
JANUARY/FEBRUARY 2013 EXAMINATION

B.Sc Agricultural Extension and Management
AGM 314: AGRICULTURE MECHANIZATION (2 Credit Units)
ANSWER ANY 4 QUESTIONS (20 Marks each)
TIME: 2 HOURS

- 1a. Define these terms: Farm Mechanization, Mechanical Advantage, Velocity Ratio, and Efficiency
- 1b. Explain how an incline plane and gears work
- 1c. an inclined plane at an angle of 30° to the horizontal is used as a simple machine. A force E is used to push a load of 120N uniformly up the plane at efficiency of 50%.
Determine:
i) Its velocity ratio
ii) The magnitude of E
- 2a. what are the following tools use for in agricultural mechanisation farm?
Centre Punch, Hack Saw, Vernier Caliper, Protractor and Scriber
- 2b. what is a cycle? Describe the operation of the 4-stroke Cycle
- 3a what is Secondary Tillage?
- 3b. List the objectives of Secondary tillage
- 3c. Explain the following terms:
Zero tillage, Minimum tillage and Maximum tillage
- 4a. with the aid of open drive system describe power transmission through belting.
- 4b. the pulley on a machine is 250mm diameter. It is to be driven at 183rev/min. A Main-shaft to drive the machine has a pulley of diameter 120mm. what is the speed of the running shaft to drive the machine?
- 5a. what are the purpose of gears in power transmission?
- 5b. Name the kind of gears commonly use in the farm.
- 5c. why is tractor in bottom gear can pull heavier loads than when the tractor is in top gear?
- 5d. what is the speed ratio for gears?

- 6a. briefly explain the functions of combine harvester and sprayer
- 6b. what are the necessary guidelines for joint machinery ownership in farm management?
- 6c. what are the components of fixed and variable cost?