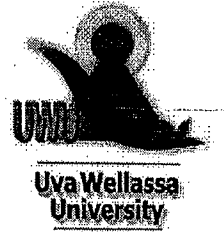


Uva Wellassa University
Faculty of Animal Science & Export Agriculture
BSc in Export Agriculture/ Bachelor of Animal Science



End Semester Examination February/March 2012
Year II Semester I

Agricultural Farm Mechanization (EAG 202-2/AAS 202-2)

Instructions

Answer all questions. Each question bears equal marks.

No. of questions : Four (04)
No. of pages : Three (03)
Total marks allocated : 40%
Time : Two Hours (02 hrs)

1.

- a. What is the working principle of internal combustion engine? How does it differ from external combustion engine?
- b. How do you differentiate a four stroke cycle engine from a two stroke cycle engine ?
- c. What is a carburetor? How does it work? Describe different components of a common carburetor with the help of a neat sketch.
- d. Briefly explain the components of a diesel fuel system
- e. Stroke bore ratio of three (03) a cylinder four stroke diesel tractor engine is 1:2 and its compression ratio is 18:1. The radius of the crank shaft is 60mm. If the engine develops 24KW at the speed of 2400rpm,

Calculate;

- i. The actual air consumption within one minute, when the volumetric efficiency is 90%.
- ii. Total volume of the combustion chamber in cm^3

2.

- a. Distinguish between;
 - i. Primary tillage and secondary tillage
 - ii. Trailed and mounted type implements
 - iii. Theoretical field capacity and effective field capacity
 - iv. Draft and specific draft
- b. Briefly explain the functions of a mould board plough components with the help of neat sketches
- c. Comment on the followings;
 - i. Tillage practices provide favorable conditions for crop growth
 - ii. Conventional tillage practices are better than modern tillage practices
- d. The line of pull on an implement is about 15° above the horizontal.
 - i. Calculate the draft for a pull of 11KN.
 - ii. What drawbar power would be required at the speed of 5.5km/h?
- e. Briefly explain the forces acting upon a tillage implement

3.

- a. Briefly explain the following in relation to farm tractors (i.e. two wheel and four wheel tractors)
 - i. Two wheel drive
 - ii. Four wheel drive
 - iii. PTO shaft
 - iv. Gears
 - v. Brakes
 - vi. Accelerator
 - vii. Clutch
 - viii. Starting system
- b.
 - i. How do you explain the working principle of the differential of a farm tractor
 - ii. Briefly explain the importance of it

- c.
 - i. What is meant by Power Transmission
 - ii. How does the power generated in the engine of the farm tractor transmit to wheels?
 - iii. Briefly explain the uses of gears as a power transmission element

- d.
 - i. What is a pulley?
 - ii. Two pulleys are connected by a belt. The sum of the diameters of two pulleys is 90cm and, while the one makes 50 revolutions per minute, the other makes 20 revolutions. Find the diameter of the pulleys

4. Write short notes on the following

- a. Splash lubrication
- b. Liquid cooling system
- c. Valve timing system
- d. components of an internal combustion engine
- e. Homogenization of milk fat
- f. Plate heat exchangers

