

EASTERN UNIVERSITY SRILANKA  
FIRST YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE 2009/10  
AEN 1101 – FARM MECHANIZATION (2:20/20)  
(May/June 2011)  
Practical Examination



Time : 02 hours  
Answer all questions

01. (a) Calculate the brake power of a 4 stroke 8 cylinder internal combustion engine having the following dimensions.  
Stroke bore ratio = 2.5  
Cylinder bore = 20cm  
Crankshaft speed = 2400 rev/min  
Mean effective pressure = 900 kPa
- (b) How many times the power of this engine would increase or decrease when the diameter of the cylinder is increased by 10%, having all other dimensions remaining the same.
02. (a) Draw sketches and label the components of two stroke petrol and 4 stroke diesel engines.
- (b) A final year research student wants to modify a 4 stroke 4 cylinder diesel engine into a 4 stroke 4 cylinder gas engine as part of the requirement of his/her project. List down the possible suggestions that you can give him/her (detailed description is not expected).
03. (a) During the calibration procedure of a knapsack sprayer a student wants to measure the speed of advance in the field. How would you help him/her to perform this task?
- (b) The following data were obtained during the calibration process of a knapsack sprayer by a group of students. What is the conclusion that you can make about the performance of the sprayer?  
Volume flow rate – 700ml/min  
Swath width – 1meter  
Speed of Advance – 12.5 m/min
04. (a) Briefly describe the power transmission mechanism in a 4 wheel tractor.
- (b) At present, the tillage system is commonly used in SriLankan rice cultivation, the **tine tillers** are commonly used by the farmers during the **primary tillage** operations to prepare the land. What are the most common problems associated with this type of tillage operation.