



**UNIVERSITY OF SWAZILAND
SUPPLEMENTARY EXAMINATION PAPER**

**PROGRAMME: BSC AGRIC ECON. AGBMGT. II
BSC AGRIC EDUC. II
BSC AGRON. II
BSC ANI. SC. II
BSC ANI. SC. (DAIRY) II
BSC HORT. II**

COURSE CODE: ABE 210

TITLE OF PAPER: PRINCIPLES OF FARM MECHANISATION

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: NONE

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO OTHER
QUESTIONS.**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN
GRANTED BY THE CHIEF INVIGILATOR**

SECTION I COMPULSORY

QUESTION 1

- a) Name five important functions that are performed by planters during a planting operation
[10 marks]
- b) Distinguish between broadcasters, drills and precision planters as a classification of planting equipment.
[15 marks]
- c) A maize field of 90 hectares is sprayed twice before harvesting is conducted. Spraying is applied while moving at 8 kph. Each nozzle discharges 0.5 l/min and are spaced at 50 cm from each other on an 18 m boom. Determine
- (i) The application rate in l/ha
[8 marks]
- (ii) The annual cost of spraying, if the concentrate is sold at E85/l and a dilution of 1:50 is recommended.
[7 marks]

SECTION II – ANSWER ANY TWO QUESTIONS

QUESTION 2

- a) Distinguish between the following farm equipment;
- i) Harrows and cultivators [5 marks]
ii) Dusters and sprayers [5 marks]
iii) Chisel ploughs and subsoilers [5 marks]
- b) Briefly describe any five tillage objectives that are relevant to Swaziland.
[15 marks]

QUESTION 3

- a) Discuss the advantages and disadvantages of the use of mould board ploughs as opposed to disc ploughs in Southern Africa.
[15 marks]
- b) A three bottom disc plough is to be used at Luyengo for ploughing where the soil resistance is 22 kN/m of cutting width. If each bottom has an effective cutting width of 45cm, determine the draught power required from the tractor if ploughing is conducted at an average speed of 5 kph
[10 marks]
- c) Select a tractor (rated power) to be used if drawbar power is estimated to be 75% of engine power.
[5 marks]

QUESTION 4

- a) Name three forms of grass that may be provided to animals for feeding.
[9 marks]
- b) Give an example for each form, where applicable, of a machine to harvest and process such grass for animal feed.
[6 marks]
- c) As an extension worker, explain to farmers the differences between trailed, semi-mounted and mounted modes of attaching farm equipment to tractors
[15 Marks]