



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2022/2023

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DIPLOMA IN  
AGRICULTURE

### AAD 2301: FARM MACHINERY

DATE: AUGUST 2023

TIME: 1 1/2 HOURS

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INSTRUCTIONS: Answer question *one* and any other *two* questions

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#### QUESTION ONE (30 MARKS)

- a) Enumerate three advantages and three disadvantages of electrical power (6 marks)
- b) Identify five factors that limit farm mechanization (5 marks)
- c) State four functions of a flywheel (4 marks)
- d) Outline four functions of the carburettor (4 marks)
- e) Specify four objectives of primary cultivation (4 marks)
- f) Name three types of harrows based on disc arrangement (3 marks)
- g) List the factors influencing the penetration of a disc harrow (4 marks)

#### QUESTION TWO (15 MARKS)

- a) Describe the working principle of a four-stroke cycle engine, highlighting its key operational stages and functions (10 marks)



MUST is ISO 9001:2015 and



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- b) Compare and contrast the features of a gasoline (petrol)engine and a compressed air ignition (diesel) engine, discussing five fundamental differences in terms of fuel, ignition, combustion process, efficiency and applications (5 marks)

**QUESTION THREE (15 MARKS)**

- a) Discuss and draw the components comprising a combine harvester (10 marks)
- b) A combine harvester with dimensions of 2.5x5 meters is harvesting a field at a speed of 8km/h. calculate the time it takes to harvest a rectangular field measuring 800x600 meters, considering a field efficiency of 85% (5 marks)

**QUESTION FOUR (15 MARKS)**

- a) Explore the components of a disc plough (10 marks)
- b) Identify five components of a planter (5 marks)

