NAME --- INDEX NO--------------------------------

DATE_____ CANDIATES SIGNATURE _____

443/1

AGRICULTURE

FORM 1

TIME: 2 HRS

MWAKICAN JOINT EXAM TEAM (MJET) – TERM 2 2015

443/1

AGRICULTURE

FORM 2

TIME: 2 HRS

SECTION A (40MKS)

1. Name three conditions under which shifting cultivation is practicable. (3mks)

2. List four disadvantages associated with the burning of land in shifting land preparation.(4mks)

3. Outline four environmental conditions that may lead to poor crop yields. (4mks)

4. Name four human factors that influence production and distribution of crops and livestock

(4mks)

5a) What is sub –soiling? (1mk)

2

b) Give four advantages of minimum tillage. (4mks)

6. Mention three types of pumps. (3mks)

7. Outline four properties of clean and safe water. (4mks)

8. Name three methods of surface irrigation. (3mks)

9a) Define drainage. (1mk)

b) Give three causes of poor drainage. (3mks)

10. There are several agricultural practices that causes water pollution. Briefly mention them

(4mks)

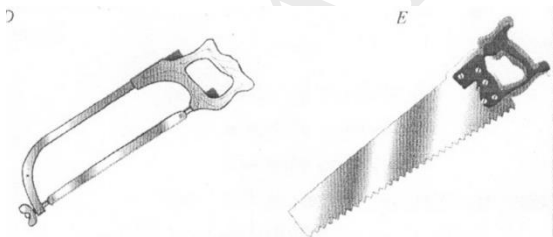11. Name a tool used for each of the following operations.(2mks)

i)Testing mastitis

ii) Cut overgrown hooves

SECTION B(30MKS)

Answer all the questions in this section.

12. Diagram D and E below are illustrations of workshop tools. Study them and answer the questions that follow.

a) Identify the tools marked D and E.   (2mks)
    D

    E
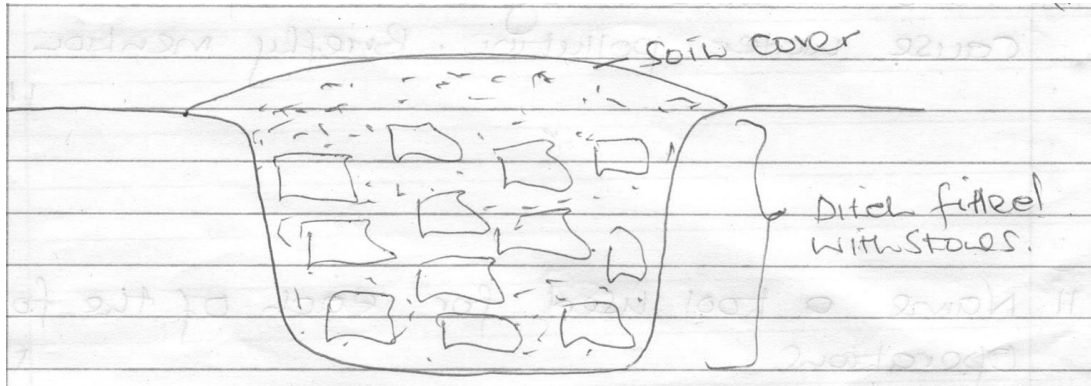b) State one function of each of the tool shown.   (2mks)
    D

   E

   c) Give one maintenance practice of tool E. (1mk)

13a) Identify the method of drainage shown below. (1mk)

b) Other than the method shown in (a) above list other four methods used in draining farm land.

(2mks)

C) Outline four reasons for draining farm land. (2mks)

14. The illustrations below represent an experiment to compare the porosity and water holding capacity of three of soils. Carefully study the experiment and then answer the questions that follow.
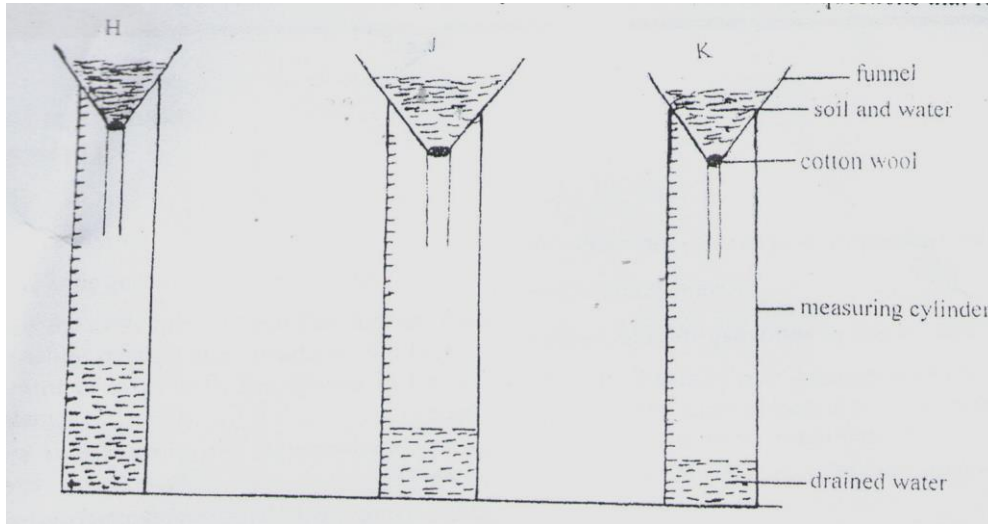
a i) Identify the soil in each of the funnel labeled.   (3mks)

H

J

K

b) Which of the three types of soil can be said to have the highest porosity rate?   (1mk)

C)Which type of soil would be suitable for planting paddy rice?   (1mk)

15. Complete the table below that attempts to classify soil based on the sizes of soil particles. (5mks)

Particles	Size (diameter) in MM
	Above 2.0mm
	Between 0.20mm and 2.00mm
	Between 0.20mm and 0.20mm
	Between 0.002mm and 0.02mm
	Below 0.002mm

16. Below is a diagram of farm equipment. Use it to answer the questions that follows.
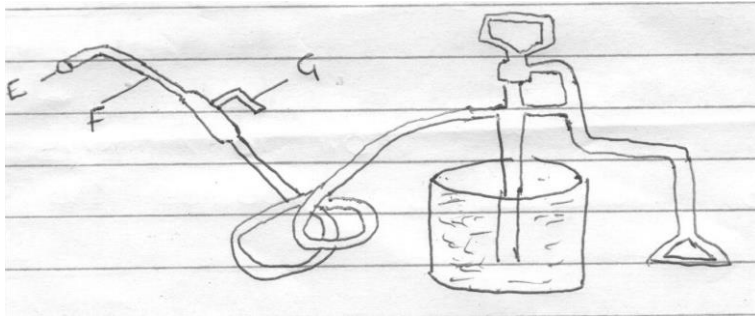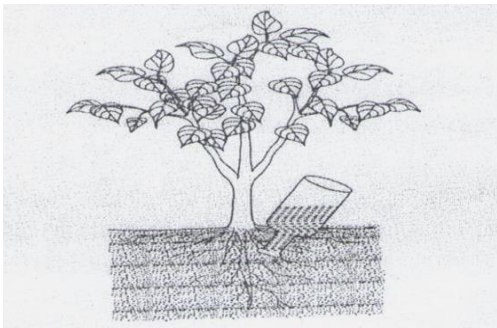
a) Identify the equipment. (1mk)

b) State the use of the equipment. (1mk)

c) Name the parts labeled E, F and G. (3mks)

17a) Identify the method of irrigation shown below. (1mk)

b) What are the disadvantages of this method of irrigation? (2mks)

c)Outline how the method of irrigation in (a) above is maintained? (2mks)

SECTION C(30MKS)

Answer all question in this section.

18a) Outline six biotic factors influencing agriculture.   (6mks)

b) State the four aspects of rainfall that are important for crop growth .   (4mks)

19a) State five factors that determine the number of times secondary cultivation is done.(5mks)

b)Outline the advantages of minim tillage.   (5mks)

20a) State four importance of water treatment.   (4mks)

b) What factors determine the choice of the type of irrigation used?   (6mks)

MARKING SCHEME FORM 1 AGRICULTURE

1. Conditions under which shifting cultivation is practicable
   - Communal land ownership
   - Large pieces of land
   - Sparse population.   3x1 = 3mks

2. Disadvantages associated with the burning of land.

   - Destroys beneficial soil micro – organisms
   - Destroy the soil structure
   - Destroy soil organic matter
   - Pollutes the air
   - Reduces soil fertility by vaporizing nutrients.   4x 1 = 4mks)

3. The environmental conditions that may lead to poor crop yields

   - Strong winds
   - Low relative humidity
   - Lack of or excess rainfall
   - Extreme temperatures
   - Low light intensity   4x 1 = 4mks)

4. Human factors that influence production and distribution of crops and livestock
   - Level of education and technology
   - Health
   - Economy
   - Government policy
   - Transport and communication
   - Cultural practices and religious beliefs
   - Market forces.
   - Labour supply   (4x 1 = 4mks)

5. A) Sub – soiling is the practice of breaking hardpans compacted soil in the sub soil.   1x 1 = 1m

b)   Advantages of minimum tillage
   - Save money and time of cultivation
   - Controls soil erosion
   - Reduces loss of nutrients through oxidation
   - Minimizes soil structure disturbance/ maintain soil structure
   - Reduces root disturbance
   - Conserves moisture
   - Reduces labour requirements   4 x 1 = 4mks)

6. Types of pumps
   - Centrifugal pumps
   - Piston pumps
   - Semi –rotary pumps
   - Hydram.   3x 1 = 3mks)

7. Properties of clean and safe water

-Free of pathogens
- Colorless/ Clear
-Odorless
-Tasteless
- Neutral Ph
- Free of foreign contaminations. 4x 1 = 4mks)

8. Methods of surface irrigation
- Basin irrigation
- Flood irrigation
-Furrow irrigation (3x 1 = 3mks)

9a) Drainage is the removal of excess water from the land/rehabilitation of swampy land 1x1 = 1mk
- Too much rainfall on low land
- Shallow soil profile
- Hardpans
- High water table
- High water retention and holding capacity 3x 1 = 3mks)

10. Agricultural practices that cause water pollution.
-Sewage and other oxygen demanding wastes.
- Plant nutrients that can stimulate the growth of aquatic plants/ algae
- Exotic organic chemicals eg pesticides
- Petroleum, especially from oil spills
- Sediments consisting of soil and mineral particles washed by storms and flood water
From farms.
- Effluents from agricultural processing factories.
- Surface – active substance in detergents. 4x 1 = 4mks)

11. A tool used for each of the following operations
i) Strip cup   1x1 = 1mk
ii) Hoof cutter 1x 1 = 1mk)

12a) Identification of tools
D – Hacksaw   (1x 1= 1mk
E - Cross – Cut saw   (1x 1= 1mk)

b) Function of each tool.
D – For cutting wires and metals (1x 1 = 1mk)
E – F or cutting across the grains of timber/ wood (1x1 = 1mk)

c) Maintenance practice carried out on tool E.
- Tighten loose screw and nuts
- Teeth setting should be done
- Straighten the blade when bent
- Regular cleaning should be done
- Oil blades before storing them for long
- Broken handles should be replaced or repair
- Regular sharpening of the teeth should be done.
- Proper storage   any 1x1 = 1mk

13a) Identification
- French drain   (1 x1 = 1mk)

b) Other methods used in draining farm land.

- Planting trees
- Pumping
- Cambered bed
- Underground drain pipes
- Open ditches   any 4x ½ = 2mks)

c) Reasons for draining farm
- To increase soil aeration
- To increase soil volume
- To raise soil temperature/ warmth
- T o increase microbial activities
- To reduce soil erosion
- To remove toxic substances   4x ½ = 2mks)
- Enhance soil PH
- Improve soil structure

14a) Identification
H – Sandy soil
J – Loam soil
K - Clay soil 3x 1 = 3mks)

b) Soil type with highest porosity
H/Sandy soil   1x1 = 1mk

c) Type of soil suitable for planting paddy rice
K/Clay soil   1x1 = 1mk)

15. Completed table that classifies soil base on the size of soil particles

Particles	Size (diameter) in MM
Stone/gravel	Above 2.0mm
Coarse sand	Between 0.20mm and 2.00mm
Fine sand	Between 0.20mm and 0.20mm
Silt	Between 0.002mm and 0.02mm
clay	Below 0.002mm

5x 1 = 5mks)

16a) Identification
Stir – up pump (1x 1 = 1mk)
b) Use of the equipment
Spraying livestock against external parasites 1x1 = 1mk

C) E – Nozzle
   F - Lance
   G – Trigger   (3x 1 = 1mk)

17a) Identification
Drip irrigation (1 x 1 = 1mk)
b) Disadvantages of the methods of irrigation
- Expensive to install
-        - Can only use clean water since nozzles can be blocked
- High technological skills required.   (2x 1 = 2mks)
c) How is drip irrigation is maintained.

- Repair broken pipes
- Unblock the perforations
- Use phosphoric acid to dissolve salt deposits (2x 1 = 2mks)

18 a) Biotic factors influencing agriculture
- Pathogens
- Decomposers
- - Pests
- Pollinators
- Predators
- Nitrogen fixing bacteria
- Parasites   6x 1 = 6mks)

b) Aspects of rainfall
- Rainfall amount
- Rainfall distribution
- Rainfall reliability
- Rainfall intensity   4x 1 = 4mks)

19. Factors that determine the number of times secondary cultivation is done
- Type and size of planting material/type of soil
-Cost involved
- Time available
- Skill of the tractor operator
- Zoography/slope of land
-Soil moisture content/ Soil type
- Land condition/type of implement used in primary cultivation/amount of vegetation on the land.   5x 1 = 5mks)

b) Advantages of minimum tillage
- Control soil erosion
-Reduces cost of cultivation/ save money and time
-Reduces loss of nutrients through oxidation
- Minimizes soil structure disturbance/ maintains soil structure
- Reduces roots disturbance
- Conserves moisture
- Reduces labour requirements.   5 x 1 = 5mks)

20 a) Importance of water treatment
- To destroy pathogens/ to kill the harmful micro- organisms
- To remove chemical impurities/ soften
- To remove smells/ bad odor
- To remove sediments/ to dissolve impurities. 4x 1 = 4mks)

B) Factors determining the choice of the type of irrigation used.
-Type of soil
-Rate of evaporation
-Quantity of water required and available
- Crop type to be irrigated
- Available capital
- Slope of land.   6x 1 = 6mks)