

FORM THREE MARKING SCHEME

1) What is a weed? (1mk)

- ◆ *Any plant growing where it is not required and whose economic disadvantages outweigh the advantages.*

2) Name three ways in which weeds can be classified according to their life cycle. (3mks)

- ◆ *Annual weeds.*
- ◆ *Biennial weeds.*
- ◆ *Perennial weeds.*

3) Explain six factors that contribute to the competitive ability of weeds. (6mks)

- ◆ *They have ability to produce larger quantities of seeds.*
- ◆ *Weed seeds remain viable in the soil for a long time waiting conducive germination percentage.*
- ◆ *Some seeds have ability to propagate vegetatively.*
- ◆ *Most weed seeds are easily and successfully dispersed.*
- ◆ *Have ability to survive even where there is limited nutrient supply.*
- ◆ *Most have a short life cycle making sure they complete their life cycle even when the rainfall is short.*
- ◆ *Most have extensive root system for nutrient and water uptake.*

6) Give four benefits of weeds. (2mks)

- ◆ *Some are edible to both man and livestock. E.g. pig weed and wandering Jew.*
- ◆ *Leguminous weeds fix nitrogen in the soil.*
- ◆ *Some have medicinal effects e.g. Sodom apple.*
- ◆ *Weeds add organic matter to the soil when they decompose.*

7) Describe five ways in which herbicides kill weeds. (5mks)

- ◆ *Killing the cell. Depends on ability of the herbicide to penetrate into the cell wall and kill the cytoplasm.*
- ◆ *Causing abnormal tissue development. Some cause abnormal growth of tissues such as gall formation. Or others are growth regulators that interferes with plant growth.*
- ◆ *Inhibiting photosynthesis. Some interferes with chlorophyll formation interfering with photosynthesis.*
- ◆ *Inhibiting respiration. Some block movement of materials from the site of manufacture to other areas.*
- ◆ *Inhibition of nitrogen metabolism. Some interferes with formation of nucleic acid reducing nitrogen metabolism.*
- ◆ *emergence.*

9) Explain four plant morphological and anatomical features that affects the selectivity and effectiveness of herbicides. (4mks)

- ◆ *Leaf angle. Plants having more inclined leaf angles such as grasses retain less herbicides thus are less susceptible than those with horizontal angles.*

- ◆ *Nature of leaf surface. Plants with thick cuticles and are more waxy surfaces retain less herbicide thus less susceptible.*
- ◆ *Differential height of plants. If the weeds are shorter than crops or vice versa then selectivity can be achieved.*
- ◆ *Location of growing points. Terminal buds and growing points are exposed in dicots and enclosed in grasses making dicots more susceptible to herbicides.*
- ◆ *Difference in root systems. Some plants have deep roots while others are shallowrooted. Shallow rooted crops are more susceptible to herbicides.*
- ◆ *Specialised structures. Plants with structures such as rhizomes and bulbs are less susceptible as these structures acts as organs of perennation.*
- ◆ *Metabolic/physiological factors. Some plants have poor absorption of some herbicides while others have ability to neutralize. This makes them less susceptible to herbicides.*

10) Differentiate between contact and translocated herbicides. (2mks)

- ◆ *Contact herbicides kills only the part of the weed in which they come into contact with while translocated herbicides are kills the whole plant even if it comes into contact with only a small part.*

11) Explain various ways in which an herbicide user can use to protect himself, other people and the environment. (10mks)

- ◆ *Read manufactures' instruction and follow them.*
- ◆ *Wear protective clothing such as overall, breathing mask, gloves and boots.*
- ◆ *Avoiding inhaling the herbicides by: Not spraying against the wind. Not smoking while spraying. Wearing breathing mask.*
- ◆ *Take a thorough bath after handling chemicals.*
- ◆ *Do not blow or suck blocked nozzles.*
- ◆ *Avoid herbicide drift to unintended crops by not spraying on windy days.*
- ◆ *Drift to animal feeds and water should be avoided.*
- ◆ *Avoid spilling herbicides on pastures and fodder crops.*
- ◆ *Empty containers must be properly disposed off e.g. by burying them.*
- ◆ *Spraying equipments should not be washed in water sources which are used by animals and humans.*
- ◆ *Store chemicals in safe place out of reach of children and away from food.*
- ◆ *Equipments used in spraying herbicides should be washed to prevent killing of the next crop by herbicides remaining in the pump.*

16) State four advantages of tillage in weed control. (2mks) ◆ It

is cheap and thus a good option to small scale farmers.

- ◆ *During tillage, crop residue is incorporated into the soil.*
- ◆ *Tillage opens up the soil allowing infiltration of water to occur thus minimizing soil erosion.*
- ◆ *During tillage, earthing up is done and this encourages root growth.*

17) State four limitations of tillage in weed control. (2mks)

- ◆ *Tillage may not effectively control weeds, especially the perennials.*

- ◆ *Tillage creates suitable conditions for weeds to germinate.*
- ◆ *Excessive weeding may lead to water loss, soil erosion and damage to crops roots.*
- ◆ *Excessive tillage pulverizes the soil thus destroying soil structure.*

18) Explain eight cultural methods of weed control. (8mks)

- ◆ *Mulching. Organic or inorganic mulch materials applied near the plant base help to smother weed. Or mulching materials prevent weed seeds from reaching the ground and germinating.*
- ◆ *Cover cropping. Plants with a good ground cover controls weed growth by smothering them.*
- ◆ *Crop rotation. Some weeds are specific to a family of crops thus alternating it with another family controls them.*
- ◆ *Timely planting. Allows crops to establish earlier than weeds hence smothering them.*
- ◆ *Use of clean seedbed/planting materials. Prevents introduction of weeds in the farm.*
- ◆ *Proper spacing. Creates little space for weed growth and the crops forms a canopy that suppresses weeds.*
- ◆ *Clean seedbed. It makes sure that the crops start off in a clean bed making them establish earlier than weeds hence smothering them. Done through proper tillage.*
- ◆ *Flooding. Use of water in the seedbed eg. In rice fields. This control growth of non-aquatic weeds since they are not adapted to growing in water logged areas.*

19) Name three biological weed control methods. (3mks)

- ◆ *Use of livestock e.g. goats to graze and control growth of weeds in plantation crops such as coconuts and cashew nuts.*
- ◆ *Use of certain weed eating fish to control aquatic weeds.*
- ◆ *Use of moths to control cactus.*

21) Give an example of a weed matching the following description. (3mks)

a) Causes poisoning to livestock and or human.

- ◆ *Thorn apple*
- ◆ *Sodom apple.*

b)Is a noxious weed.

- ◆ *Cannabis sativa*

c)Alternate host of rust.

- ◆ *Wild oat.*