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UNIVERSITY OF ZAMBIA
School of Agricultural Sciences
Department of Plant Science

Third Year Examinations for Bachelor of Agricultural Sciences
AGC 3342: Crop Protection
2021/2022 Final Examination

Date: 2nd November, 2022

Time: 14:00-17:00

Venue: OMNIA 1

INSTRUCTIONS:

- 1) THERE ARE THREE SECTIONS IN THIS EXAM. ANSWER ALL QUESTIONS
- 2) MARKS ARE AS INDICATED
- 3) DURATION OF EXAM IS 3 (THREE) HOURS
- 4) SECTION 2 AND 3 SHOULD BE ANSWERED IN ONE ANSWER BOOKLET

SECTION 1: ENTOMOLOGY

QUESTION 1 (20 MARKS)

The Swedish, Carl Linneaus, is known as the Father of taxonomy and proposed the system of binomial nomenclature in 1758.

- i. Define taxonomy. (1 mark)
- ii. What is binomial nomenclature? (1 mark)
- iii. As an extension officer, you come across a new pest, describe the various methods that you could use to identify the pest. (6 marks)
- iv. Name the seven (7) taxonomic hierarchy used in classifying insects. (7 marks)
- v. If you find an insect name written as *Prostephanus truncatus* (Horn), what does it mean? (2 marks)
- vi. Write the insect orders of House fly, Fall armyworm, and beetles. (3 marks)

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QUESTION 2 (20 MARKS)

a. Discuss briefly the five (5) mechanical appliances that are used in managing insect pests in the field. (10 marks)

b. Distinguish between the following:

- i. Absolute sampling and relative sampling. (2 marks)
- ii. Foreign quarantine and domestic quarantine. (2 marks)

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Kingdom
Phylum
Class
Species
Genus
Order

- iii. Gregarious parasitoid and solitary parasitoid (2 marks).
- iv. Insecticide and pesticide (2 marks)
- v. Antixenosis and antibiosis (2 marks)

SECTION 2: PLANT PATHOLOGY

QUESTION 3 (10 MARKS)

State whether the following are **true** or **false**

[10 Marks]

- a. Chemical control can be used to manage viral diseases indirectly
- b. Diseases from the fungal group oomycetes can be controlled using chitin-degrading fungicides
- c. *Cercospora zea-maydis* causes maize blight ✓
- d. Infectious disease symptoms may resemble those caused by abiotic factors ✓
- e. High plant density tends to decrease disease incidence due to increase in moisture in the plant canopy ✓
- f. Pathogens cause disease through toxins, enzymes and genetic manipulation
- g. Planting disease-free planting materials is a cultural and not preventative control method for plant diseases.
- h. *Pseudomonas phaseolicola* is a fungus
- i. Nematicides are important in the management of *Phytophthora infestans* ?
- j. The 4 stages of integrated disease management (IDM) include prevention, observation, intervention and acceptable disease levels
- k. In integrated disease management (IDM), chemical control should be used judiciously and immediately
- l. Flooding may be used to control nematodes
- m. *Tagetes* spp. (marigolds) inhibit the development of a range of nematode species.
- n. Dry rots are caused by fungi whereas wet rots are caused by bacteria
- o. Locating dissimilar crops next to each other can promote pathogen movement from field to field.
- p. Fungicides effective against *Phytophthora* spp are more likely to be effective against *Pythium* spp. than against *Rhizopus* spp. ?
- q. Galls are mostly caused by bacteria and nematodes ✓

