KATHMANDU UNIVERSITY
End Semester Examination
February, 2025

Marks Scored:

Level : B.Sc.
Year : III

Course : ESEE 331
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : 14 FEB 2025

SECTION "A"

[40 Q. × 0.5 = 20 marks]

Choose and mark [X] the most appropriate option from each set of choices

1. Which of the following is NOT a classification of pesticides based on target pests?
   [ ] Insecticides [ ] Fungicides [ ] Herbicides [ ] Organochlorines

2. Nepal started using modern chemical pesticides in agriculture
   [ ] 1900s [ ] 1950s [ ] 1990s [ ] 2000s

3. The Economic Injury Level (EIL) in pest management is known as
   [ ] The point at which pests are completely eradicated
   [ ] The cost of control equals the damage caused by the pest
   [ ] The maximum number of pests that can be tolerated without any damage
   [ ] The level at which pests become beneficial to the ecosystem

4. The main reason for the banning of DDT
   [ ] It became ineffective against pests [ ] It was too expensive to produce
   [ ] Environmental concerns [ ] It was replaced by a more toxic chemical

5. The world's food crops are destroyed by pests during growth, harvesting, and storage
   [ ] one-fourth [ ] one-third [ ] two-fourth [ ] two-third

6. The primary reason for the evolution of pesticide-resistant varieties of target organisms
   [ ] Excessive watering [ ] Lack of sunlight
   [ ] Use of chemical fertilizers [ ] Overuse of pesticides

7. The main reason for the annual reduction in malaria deaths from 6 million to <1 million
   [ ] Improved sanitation [ ] Vaccination programs
   [ ] Better nutrition [ ] Use of insecticides

8. Chemical compounds commonly found in mosquito coils
   [ ] Allethrin [ ] DDT [ ] Parathion [ ] Malathion

9. The place where the largest stockpile of obsolete pesticides in Nepal was stored
   [ ] Birganj [ ] Amlekhgunj [ ] Nepalganj [ ] Kathmandu

10. The first and best step in keeping our home free of pests
    [ ] Using chemical pesticides [ ] Sanitation
    [ ] Sealing cracks and crevices [ ] Using traps

11. Primary feeding method of leafhoppers
[ ] Piercing and sucking [ ] Siphoning
[ ] Rasping [ ] Chewing

12. Which of the following insects undergoes complete metamorphosis?
[ ] Aphids [ ] Leafhoppers [ ] Caterpillars [ ] Chinch bugs

13. The primary symptom of nematode damage in plants
[ ] Leaves turning yellow [ ] Herbicide damage
[ ] Plants wilting due to drought [ ] Root cells penetrated and digested

14. The fungal diseases in plants primarily spread through
[ ] Insects [ ] Wind and water [ ] Soil erosion [ ] Genetic mutations

15. The process of insect growth by shedding the external skeleton is called
[ ] Instars [ ] Exo-skeleton [ ] Metamorphoses [ ] Transform

16. The three names associated with every pesticide
[ ] Chemical name, trade name, and brand name
[ ] Chemical name, common name, and trade name
[ ] Common name, brand name, and generic name
[ ] Chemical name, generic name, and brand name

17. Systemic pesticides show their mode of action as
[ ] They kill pests by direct contact
[ ] They are ingested by pests and act on the digestive system
[ ] They are translocated through the plant and kill pests that feed on it
[ ] They enter the pest's body as a gas

18. This is an example of an organophosphate pesticide
[ ] DDT [ ] Malathion [ ] Carbaryl [ ] Pyrethrin

19. Lethal Dose 50 value is used to measure
[ ] The persistence of a pesticide in the environment
[ ] The amount of pesticide required to kill fifty percent of a test population
[ ] The half-life of a pesticide
[ ] The toxicity of a pesticide to non-target organisms

20. This is one of the synthetic pyrethroid
[ ] DDT [ ] Carbaryl [ ] Cypermethrin [ ] Malathion

21. The purpose of inert ingredients in pesticide formulations is to
[ ] Increase the toxicity of the pesticide [ ] Act as a minor pesticide
[ ] Serve as a carrier for the active ingredient [ ] Reduce the cost of the pesticide

22. The WHO hazard category for a pesticide with an oral LD50 of 10 mg/kg
[ ] Extremely hazardous [ ] Highly hazardous
[ ] Moderately hazardous [ ] Slightly hazardous

23. The cause of the Black Death in Europe during 1346-1353
[ ] Bacterial infection [ ] Fungal infection
[ ] Parasitic infection [ ] Viral infection

24. One of the first pesticides used to control bacteria and mold
[ ] Nicotine [ ] Sulfur [ ] Rotenone [ ] Pyrethrum

25. Traditional farming in Nepal was
[ ] Non-organic [ ] Fully mechanized
[ ] Ecologically sound [ ] Based on heavy pesticide use

26. Land holdings in the Terai region use pesticides for agriculture
[ ] 10% [ ] 25% [ ] 50% [ ] 75%

27. The most commonly used chemical pesticide in Nepal
[ ] Dichloro-diphenyl-trichloroethane [ ] Benzene Hexachloride
[ ] Glyphosate [ ] Atrazine

28. What is a major cause of pesticide poisoning in Nepal?
[ ] Accidental ingestion [ ] Suicide attempts
[ ] Occupational exposure [ ] All of the above

29. The Pesticide Regulations, 1993 govern pesticide management in Nepal whereas the Pesticide Act was enforced in the year
[ ] 1981 [ ] 1991 [ ] 2001 [ ] 2011

30. The use of Bordeaux mixture in pest control is usually to
[ ] Control mites and scale insects [ ] Kill cockroaches and ants
[ ] Repel cucumber beetles and leafhoppers [ ] Control soil insects

31. The primary mode of action of carbamate insecticides
[ ] They act as nerve poisons by inhibiting acetylcholinesterase
[ ] They are ingested and act on the digestive system
[ ] They are absorbed through the body wall of pests
[ ] They enter the pest's body as a fumigant

32. Nicotine, as an insecticide, is commonly used to
[ ] control soil insects [ ] repel insects from crops
[ ] kill by acting on their nervous system [ ] control fungus

33. Which of the following is a characteristic of rotenone as an insecticide?
[ ] It is highly toxic to warm-blooded animals [ ] It is a synthetic insecticide
[ ] It inhibits oxygen use in the bodies of insects [ ] It controls fungal infections

34. It is a neem-based insecticide that inhibits insect growth and reproduction
[ ] Azadirachtin [ ] Rotenone [ ] Nicotine [ ] Cypermethrin

35. The staple diet of over half of the world's population
[ ] Wheat [ ] Rice [ ] Maize [ ] Barley

36. Commonly used insecticide for controlling rice pests
[ ] Malathion [ ] Carbaryl [ ] Methyl Parathion [ ] Endosulfan

37. The main pest of wheat in Nepal
[ ] Rice hispa [ ] Armyworms [ ] Aphids [ ] Gall Midge

38. Most damaging group of pests to maize worldwide
[ ] Beetles [ ] Moths [ ] Aphids [ ] Rodents

39. Chemical recommended for controlling stem borers in maize
[ ] Carbofuran [ ] Quinalphos
[ ] Chlorpyrifos [ ] Metarhizium anisopliae

40. It is a strategic and integrated approach that encompasses the policy and regulatory frameworks that analyze and manage risks in food safety
[ ] Biosecurity [ ] IPM [ ] Zero hunger [ ] Permaculture

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SECTION "B"

[3 Q. × 7 = 21 marks]

Attempt ANY THREE questions.

1. Based on your field study, write in detail on the physical properties, toxicological effects, and environmental problems of one of the most used/sold pesticides among the ten listed pesticides.

2. Discuss the history and impact of pesticide use in Nepal. Explain how pesticides were introduced, their role in agriculture and health, and the existing regulations and management practices.

3. List the major insect pests of rice, wheat, and maize. Compare their damage, life cycles, and management strategies, including chemical, biological, and cultural control methods.

4. Why Integrated Pest Management is one of the options for sustainable agriculture in the world?

SECTION "C"

5. Write short notes on (***ANY FOUR***): [4Q × 4=16]
   a. Permaculture
   b. Organic products
   c. Misuse of pesticides in Nepal
   d. Plant-based pesticides
   e. Prevention of pesticide exposure

6. Differentiate between: [4Q × 3=12]
   a. Advantages and disadvantages of chemical pesticides
   b. Mechanical and biological controls
   c. Vegetable pests and diseases
   d. Broad spectrum pests and pesticides

7. Give reasons **WHY**? [3Q × 2 = 6]
   a. Pesticide treadmill is not going to stop
   b. Biosecurity is important in the agricultural sector
   c. Strong prey and predator relationship lowers the use of pesticide