

KATHMANDU UNIVERSITY  
End Semester Examination  
May/June, 2022

Marks scored:

Level : B.Sc.

Course : ENVS 305

Year : III

Semester : II

Exam Roll No. :

Time: 30 mins.

F.M. : 20

Registration No.:

Date :

SECTION "A"

[20Q. × 0.5 = 10 marks]

**Mark [x] in the most appropriate answer box**

1. The Pesticide Act and the Pesticide Regulations of Nepal came into effect since  
[ ] 1984 [ ] 1994 [ ] 2004 [ ] 2014
2. The pest that usually attacks maize plant at knee height stage  
[ ] Cutworms [ ] Stem borer [ ] Red ants [ ] White grubs
3. According to MoAD (2017), the national average productivity of maize in Nepal is  
[ ] 0.5t/ha [ ] 1.0t/ha [ ] 1.5t/ha [ ] 2.5t/ha
4. *Helicoverpa armigera* is one of the major pests of  
[ ] Potato [ ] Maize [ ] Tomato [ ] Wheat
5. *Beauveria bassiana* is used as a biological control agent for insects like beetles, ants, termites, true bugs, grasshoppers, mosquitoes, and mites. This organism is  
[ ] Fungus [ ] Bacteria [ ] Virus [ ] Nematode
6. The practice of mass-rearing of natural enemies in the laboratory and releasing them into the problematic environment  
[ ] Conservation [ ] Introduction [ ] Biomagnification [ ] Augmentation
7. Among the list, it is NOT an abiotic degradation process of pesticides  
[ ] Hydrolysis [ ] Oxidation [ ] Photolysis [ ] Metabolism
8. In the agricultural soil of Nepal, highest concentration of pesticide recorded was of  
[ ] Cypermethrin [ ] Cyfluthrin [ ] Dichlorvos [ ] Endosulfan
9. Highest level of human exposure to pesticides during spraying occurs through  
[ ] Skin [ ] Mouth [ ] Eyes [ ] Lungs
10. Among the following, the first phase of IPM do not involve  
[ ] Pest identification [ ] Monitoring  
[ ] Action thresholds [ ] Control measures
11. Irrigation, fertilization, pruning, mowing, sanitation and mulching are the examples of  
[ ] Biological pest control [ ] Cultural pest control  
[ ] Chemical pest control [ ] Genetic pest control

12. National Agricultural Research Center of Nepal has developed \_\_\_\_\_ high productive as well as pests and disease resistant crops  
 less than 50       about 100       exactly 125       more than 150
13. The term "Integrated Pest Management" was introduced  
 Before 1900       Around 1970s  
 Between 1970s and 1980s       After 1990s
14. Among the following, Integrated Pest Management approach falls under  
 Integrated Plant Protection       Integrated Management  
 Integrated Production       Integrated Control
15. In the evolutionary trend of agricultural pest control, the present phase is  
 Era of traditional approaches       Era of pesticides  
 Era of IPM       Era of transgenic
16. The effects like mortality and decreased reproduction in 50 percent of the test population due to pesticide concentration  
 LD<sub>50</sub>       DC<sub>50</sub>       EC<sub>50</sub>       DT<sub>50</sub>
17. The most important environmental factor that controls insect population and development  
 Temperature       Precipitation       Soil condition       Pesticides
18. In a normal field or crop land there will be a number of insects, mites, birds and mammals, nematodes and pathogens which collectively form  
 key pest       pest complex       resistant pest       minor pest
19. The economic threshold is always \_\_\_\_\_ to the economic injury level to enact control measures.  
 same       lower       higher       very higher
20. It looks like an insect but it is not an insect  
 Termite       Mite       Silverfish       Flea

#### SECTION "B"

[20Q. × 0.5 = 10 marks]

#### **Fill in the blanks.**

21. Nepalese fisherman, who have used or still using a chemical to catch fish in rivers and streams is \_\_\_\_\_.
22. \_\_\_\_\_ are the natural substance produced by animals to stimulate a response in other members of the same species, generally also called as sexual attractants.

23. Usually cucumber beetles and leaf hoppers are repelled by Bordeaux, which is the mixture of lime, water and \_\_\_\_\_.
24. A chemical gamma-hexachloro-cyclohexane, neurotoxin that interferes with neurotransmitter function, is commonly known as \_\_\_\_\_.
25. The main chemical ingredient in Neem plant with insecticidal properties \_\_\_\_\_.
26. Specifically trained personnel to monitor the pest population and to use control measures for pests in agricultural areas \_\_\_\_\_.
27. \_\_\_\_\_ can secure the farmers in the event of agricultural loss due to pests and diseases so that farmers will lower the use of pesticides use.
28. World Health Organization has classified "pesticide toxicity" in \_\_\_\_\_ classes.
29. Complete metamorphoses in the lifecycle of insects (among Beetle, Aphid, Leaf hopper and Cricket) is found in \_\_\_\_\_.
30. The \_\_\_\_\_ is a zone where insect is always present in detectable numbers and is regularly a pest.
31. The product besides the active ingredient added to spray tank to assist pesticide in its application \_\_\_\_\_. (Not inert materials!)
32. In a cultural pest control techniques, we use mowing, irrigation, fertilization, pruning, aerification, and \_\_\_\_\_.
33. \_\_\_\_\_ is a process of manipulating one or more of natural factors by which crop can be protected without upsetting the rest of ecosystem or jeopardizing environment and human health.

34. In the human civilization, agriculture started in around \_\_\_\_\_  
\_\_\_\_\_.
35. In the \_\_\_\_\_ phase of IPM, human resource development is a priority in Nepal.
36. Life time exposure to pesticides is comparatively less in \_\_\_\_\_  
\_\_\_\_\_ among the three major environmental components.
37. A research by Kathmandu University in the Ansikhola water samples recorded the highest level of the chemical \_\_\_\_\_.
38. Aphid lion is actually the larval stage of \_\_\_\_\_.
39. Four to five centimeter long dirty black caterpillars having a habit of coiling at slightest touch are \_\_\_\_\_.
40. The place at highest elevation i.e., 3050masl, where rice is cultivated in Nepal is in \_\_\_\_\_.

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F. M. : 55

SECTION "C"

(Long answer questions)  
[3Q. × 7 = 21 marks]

Attempt *ANY THREE* questions.

1. Describe the methods for control of pests considering the minimal effect on natural environment.
2. Discuss on the economic important pests of rice with their nature of damage and control measures.
3. What are the problems associated with pesticides? Explain.
4. List and briefly discuss on the components of integrated pest management.

SECTION "D"

5. Write short notes on (*ANY FOUR*): [4Q × 3 = 12]
  - a. Routes of pesticides exposure
  - b. Silent Spring
  - c. History of pesticides use
  - d. Botanical pesticides
  - e. Climate smart agriculture
6. Differentiate between: [4Q × 3 = 12]
  - a. Biosecurity and food security
  - b. Permaculture and conventional farming
  - c. Pest complex and serious pest
  - d. Biological and biotechnological control
7. Give reasons why? [5Q × 2 = 10]
  - a. Cost is a major factor in chemical based production system.
  - b. Active and inert ingredients are important in pesticides formulation process.
  - c. PPE are also important while applying pesticides.
  - d. Chemicals use can be lowered through genetic engineering.
  - e. Pesticide residue monitoring improves human and environmental health.

