

2022

CHEMISTRY — HONOURS

Paper : SEC-B-4

(Pesticide Chemistry)

Full Marks : 80

*The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*Answer *question no. 1* and *any twelve* questions from the rest (*question nos. 2 to 14*)

1×20

1. Answer *any twenty* questions :

- (a) What is a herbicide?
- (b) Give two examples of botanical pesticides.
- (c) Write down the full form of 'SAR' in pesticide chemistry.
- (d) Give two examples of pathogens which causes plant disease.
- (e) The book 'Silent Spring' is written by_____.
- (f) Name two inorganic pesticides.
- (g) What does the term γ suggest in the name γ -HCH?
- (h) Insecticides generally attack_____system.
- (i) What happens when chloranil is exposed in presence of sunlight and moisture?
- (j) Cite one example of a rice herbicide.
- (k) Write the name of a carbamate insecticide which is marketed under the trade name of 'Furadan'.
- (l) Mention any two uses of carbofuran.
- (m) Which of the following is not an aryl phosphate?
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|-----------------|----------------|
| (i) TIK 20 | (ii) Malathion |
| (iii) Parathion | (iv) Folidol. |
- (n) Baygon contains (write down the proper answer)
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|------------------|----------------|
| (i) Malathion | (ii) Propoxur |
| (iii) Carbofuran | (iv) Aldicarb. |
- (o) Organophosphates inhibit
- | | |
|----------------------|----------------------|
| (i) Enterokinase | (ii) Urease |
| (iii) Cholinesterase | (iv) Carbohydrazase. |

Please Turn Over

- (p) Which of the following is not a pesticide?
- (i) Chloropicrin (ii) Malachite green
(iii) Fluoroacetamide (iv) Nicotine.
- (q) Give one reason of toxicity of DDT.
- (r) What is BHC?
- (s) What is the effect of γ -hexachlorocyclohexane on human health?
- (t) What is carbaryl?
- (u) What is parathion?
- (v) Give one example of a quinone pesticide with structure.
- (w) Name one pesticide which has furan ring. Give the structure.
- (x) Name one pesticide having anilide functionality and draw the structure.
2. (a) How do pests and pathogens damage the host plant?
(b) What are pests? 3+2
3. (a) Biopesticides are more useful than the chemical pesticides. Explain.
(b) What do you mean by biopesticide? Give one example. 3+2
4. (a) Mention three primary benefits of use of pesticides.
(b) Outline the environmental impacts of using pesticides. 3+2
5. (a) Write down the chemical reactions and conditions involved in the synthesis of gammaxene.
(b) Briefly discuss the mode of action of gammaxene. 3+2
6. (a) What is thiolo effect? Explain it.
(b) What are the special features of organophosphates? 3+2
7. (a) Write a short note on 'mode of action of malathion'.
(b) Briefly describe the chemical synthesis of malathion. 3+2
8. (a) Outline the similarity and difference between organophosphorus and carbamates with respect to mode of action.
(b) What are carbamates? Write down the general structural formula of carbamates. 3+2
9. (a) Mention the uses and side effects of carbaryl.
(b) Write down the structure of carbaryl and its hydrolysed products. 3+2
10. (a) Provide the names of two herbicides from the chloroacetanilide family. Draw their structures.
(b) How many isomers are possible for HCH? Which isomer is known as Lindane? 3+2

11. (a) What are changing concepts of pesticides?
(b) How do pyrethrin and azadirachtin act? 3+2
12. (a) Discuss the harmful effects of Butachlor.
(b) Write down the preparation of Butachlor. 3+2
13. (a) How would you synthesise carbaryl from 1-naphthol? Write down the chemical reaction involved in the synthesis.
(b) What is fungitoxicity? Write down the name and structure of one fungitoxic agent. 3+2
14. (a) Mention the uses and side effects of carbofuran.
(b) What do you mean by 'integrated pest management'? 3+2
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