

**This question paper contains 4 printed pages.**

4653

Your Roll No.

**B.Sc. Prog. / III**

**AS**

**ACP-302 : INSECTICIDE-PESTICIDE FORMULATION, ANALYSIS, QUALITY CONTROL**

(Admissions of 2005 and onwards)

**Time : 3 hours**

**Maximum Marks : 75**

*(Write your Roll No. on the top immediately on receipt of this question paper.)*

*Attempt any five questions.*

*All questions carry equal marks.*

1. Answer the following:

- (a) Define acaricide and ovicide.
- (b) Define bio-test and insecticide.
- (c) Write the structural formula of Physostigmine.
- (d) What is the difference between Chlordane and Chlordene? Explain with structural formula.
- (e) Write the structural formula for  $\alpha$  and  $\gamma$  isomers of HCH.

2. (a) Write the chemical equation for the decomposition of Acetylcholine in presence of enzyme Acetyl cholinesterase.

- (b) Explain the leaving group function in Malathion using structural formula.

**P. T. O.**

- (c) Why is DDT toxic, not DDE, explain.
- (d) Which is preferred to use in crops, organo phosphates or the carbamates, explain.
- (e) Discuss the effect of hydroxylation in Carbaryl on toxicity.
3. Write the structural formula of the following:
- (a) Chlorobenzilate and kelthane.
- (b) Isomalathion and oxo-parathion.
- (c) Acetylcholine and carbaryl.
- (d) Dehydrochlorinated product of HCH.
- (e) Nicotine and Anabasin.
4. (a) Discuss the oxidation of endosulfan in view of toxicity.
- (b) Discuss the toxicity of DDT in reference of the following:
- (i) Shape of molecule.
- (ii) Polarity of molecule.
- (c) Discuss the toxicity of endosulfan sulphate and endosulfandiols giving structural aspects.
- (d) Discuss the preparation of methoxychlor with chemical equations.
- (e) How is heptachlor prepared, explain with chemical equations.

5. (a) What happens when carbaryl is heated with NaOH?
- (b) Discuss the preparation of an insecticide with the help of chemical equations. Use following chemicals:
- (i) Phosgene
  - (ii)  $\alpha$ -Naphthol
  - (iii) Methyl amine.
- (c) How is toxicity in carbamates influenced, when hydrogen in methene is substituted by alkyl groups?
- (d) Discuss the carbamates as acetylcholine inhibitors with chemical equations.
- (e) Explain with an example each, dealkylation and *o*-desulfuration.
6. (a) Write the structural formula of the following:
- (i) Methyl parathion
  - (ii) Malaaxon.
- (b) Explain with chemical equations the alkaline hydrolysis of malathion.
- (c) Which is more toxic, Malathion or Malaaxon, explain.
- (d) Depict the active ingredient in two different insect repellents, with their structural formula.

(e) Diethyl phosphate is stronger inhibitor of enzyme than dimethyl derivatives. Explain in detail.

7. (a) Discuss emulsifiable concentrates (EC) with suitable examples.

(b) How is the hydrolysable chlorine estimated in DDT? Discuss in detail.

(c) Discuss TLC in detail.

(d) Which is more effective, the natural or synthetic Allethrin? Depict the structural formula also.

(e) Discuss redox titration as analytical practice.