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*Your Roll No.* .....

**5156** **B**

## B.Sc. Prog./III

## ACP–302—INSECTICIDE-PESTICIDE FORMULATION, ANALYSIS, QUALITY CONTROL

(Admissions of 2005 & 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 :

   (*i*) Define meticide and ovicide.

   (*ii*) Define bio-test and LD-50.

   (*iii*) Write the structural formula for the insecticide obtained from Calabar bean.

   (*iv*) What is the difference between Chlordane and Heptachlor, explain with structural formula ?

   (*v*) Write the structural formula for any two isomers of HCH.

2. (*i*) Write the chemical equation for the decomposition of Acetylcholine in presence of enzyme (ACHE) Acetyl-cholinesterase.

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(*ii*) Explain the function of leaving group in methyl Parathion using structural formula.

(*iii*) Discuss the comparative toxicity of DDT and DDE.

(*iv*) Which is preferentially used in crops, organo-chlorine or carbamates ? Explain with reasons.

(*v*) Discuss the effect of hydroxylation in Carbaryl on toxicity.

3. Write the structural formula of the following :

(*i*) Epoxide of heptachlor and kelthane.

(*ii*) Malaoxon and oxo-parathion.

(*iii*) Acetylcholine and carbaryl.

(*iv*) Dehydrochlorinated product of DDT.

(*v*) Delthametherin.

4. (*i*) Discuss the oxidation of endosulfan with chemical equations.

(*ii*) Discuss the mode of action of organo-chlorine insecticide, with the help of suitable example.

(*iii*) Discuss the toxicity of endosulfan and endosulfandiol giving structural aspects.

(*iv*) Discuss the preparation of methoxychlor. Give chemical equations.

(*v*) How is heptachlor prepared, explain with chemical equations ?

5. (*i*) What happens when methomyl is heated with NaOH ? Explain with chemical equations.

(*ii*) Discuss the preparation of an insecticide with the help of chemical equations, using following chemicals :

(*a*) Phosgene,

(*b*) α-Naphthol,

(*c*) Methyl-amine.

(*iii*) Discuss the mode of action of OP insecticides.

(*iv*) Discuss the carbamates as acetylcholine inhibitors. Give chemical equations.

(*v*) Explain the *o*-dealkylation and reduction reaction in pesticides. Give an example of each.

6. (*i*) Write the structural formula of the following :

(*a*) Isomalathion,

(*b*) Parathion.

(*ii*) Explain with chemical equations the acidic hydrolysis of malathion.

(*iii*) Which is more toxic, Malathion or Isomalathion ? Explain.

(*iv*) Depict the active ingredient in two different insect repellents with their structural formula.

(*v*) Which is strong inhibitor of enzyme di-methyl or diethyl phosphate derivatives ? Explain in detail.

7. (*i*) Discuss solid formulations with suitable examples.

(*ii*) How is hydrolysable chlorine estimated in organo-chlorine insecticides ? Discuss in detail.

(*iii*) Discuss Thin Layer Chromatography (TLC) with an example.

(*iv*) Which is more effective, natural or synthetic Allethrin, depict the structural formula also ?

(*v*) Discuss pesticide pollution in reference of soil and water.