

M.Sc.(Ag.) Semester – III Examination, 2014

Soil Science and Agricultural Chemistry

Course : SSC – 510

(Chemistry of Pesticides)

Time: 3 Hours

Full Marks: 50

Questions are of value as indicated in the margin.

Answer **any five** questions from the following.

1. (a) What is the importance of pesticide residue analysis?
(b) Write down the basic principle involved in pesticide residue analysis?
(c) Briefly discuss the steps involved in the pesticide residue analysis. 2+3+5=10
2. What happens when (**any five**): 5×2=10
 - (a) Chlorination of benzene chlorine in presence of organic peroxide.
 - (b) When copper sulphate reacts with the lime in an alkaline medium?
 - (c) Sodium benzothiolate condensed with o,o-diisopropyl phosphorochloride?
 - (d) Methyl amine reacts with CS₂ in presence of HCHO in an acid medium?
 - (e) Oxidation of phenol with hydrochloric acid in presence of potassium chlorate?
 - (f) Diethyl mercury reacts with mercuric chloride in an aqueous medium?
 - (g) Hydrolysis of carbofuran?
3. Write down the synthesis of the following pesticides (**any five**): 5×2=10
 - (i) Car bendazim
 - (ii) Captan
 - (iii) Carbaryl
 - (iv) Hinosan
 - (v) Vitavax
 - (vi) Mancozeb
 - (vii) Blitox
4. (a) What are the physicochemical properties of soil which influences the activity of pesticides in soil?
(b) Briefly discuss the processes that affect the fate of pesticides in soil? 5+5=10
5. Write short notes (**any five**): 5×2=10
 - (a) Triazine herbicides
 - (b) Characteristics of an Ideal Fungicides

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- (c) Mode of action of fungicides
 - (d) Mode of action of organophosphorous
 - (e) Mode of action of Cu-fungicides
 - (f) Dithiocarbamate fungicides
 - (g) Biodegradation of pesticides
6. (i) What do you mean by conjugated, non-conjugated and cumulative diene? Draw their structure.
- (ii) How adduct is formed in the Diels-Alder Reaction?
- (iii) What is the mechanism of Diels-Alder Reaction?
- (iv) How Captan is synthesized following by Diels-Alder Reaction? $3+1+1+5=10$
7. (a) Write down the IUPAC name of Endosulfan.
- (b) How endosulfan synthesis takes place from hexachlorocyclopentadiene (HCCP)?
- (c) How endosulfan lactone is formed in the plant system? $2+4+4=10$
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Noted
22/2/20
20/2/20