This question paper contains 3 printed pages.

7150 *Your Roll No*

M.Sc. / II **J**

AGROCHEMICALS AND PEST MANAGEMENT

Paper X— Natural Products including Natural Pesticides

Time 3 hours *Maximum Marks* : 38

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

Answer any ***three*** *questions from Section A and* ***three*** *questions from Section B. Question No 1 from Section A and Question No. 5 from Section B carry 7 marks each.*

SECTION A

1 Discuss a synthetic route for obtaining (+)-Disparlure with 100%ee 7

2 How can the following conversions be carried out?

(*i*) Cholesterol into Progesterone

(*ii*) Diosgenin into Ecdysone

(*iii*) Methylestrone into Norethindrone. 6

3. Discuss the following (answer any *three*)

P T O.

(*i*) S(+) Glutamic acid $\xrightarrow{HNO_2}$?

(*ii*) Tebufenozide

(*iii*) Sharpless's asymmetric dihydroxylation

(*iv*) Uses of Pig pancreatic lipase. 6

4 Discuss.

(*i*) Biosynthesis of Ecdysone

(*ii*) Production of Deltamethrin

(*iii*) Significance of Norsteroids. 6

Section B

5. (*a*) Classify organic natural products on the basis of biosynthetic concepts.

(*b*) Give *one* example of each of the above groups by name and structure.

(*c*) Write very brief notes on 'The use of radioactive elements in biosynthetic studies' 7

6 Outline a sequence of steps leading to an enantioselective synthesis of chrysanthemic acid 6

7 (*a*) Write perspective formulae of:

(*i*) Nicotine

(*ii*) Atropine

(*iii*) Cocaine

(*b*) Outline a total synthesis of any *one* of them. 6

8 What are the biochemical roles/functions of.

(*i*) Vitamin K

(*ii*) Vitamin C

(*iii*) Anthocyanins

(*iv*) Carotene 6

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