MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **IV (New)**	**Term**	: **II**	**Academic Year**	: **2011-12**
Course No.	: ENTO 242	**Title**	: **Insect Ecology, Integrated Pest Management and Beneficial Insects**		
Credits	: 3 (2+1)				
Day & Date	: Thursday, 26.04.2012	**Time**	: 14.00 to 17.00	**Total Marks**	: **80**

Note :
1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Enlist various biotic and abiotic factors of environment and explain the effects of temperature on insects.

Q.2 What is pest? Explain various causes of pest outbreak in an agro ecosystem.

Q.3 What is IPM? State various advantages of IPM.

Q.4 What is HPR? Enlist different mechanisms of HPR and describe any one of them.

Q.5 Enlist different methods of pest control. Explain mechanical practices used in pest management.

Q.6 a) Comment on 'biological control as ecological basis for pest management'. (4)
b) Explain in brief the mass production technique for *Trichogramma* (4)

Q.7 a) Explain the role of entomopathogenic micro organisms in pest management. (4)
b) Describe in brief mass production technique of *Ha*NPV. (4)

Q.8 a) Classify insecticides based on mode of action. (5)
b) State the need for insecticidal formulations. (3)

Q.9 a) Define 'Silk' and enlist various equipments required for rearing of silkworm. (5)
b) Give economic importance of honey bees. (3)

Q.10 Write short notes (Any Two)
1) IGRs in pest management
2) Management of rodents in field
3) Importance of pest forecasting

SECTION "B"

Q.11 Define the following terms.
1) Economic Threshold
2) LD_{50}
3) Hyperparasitism
4) Cannibalism
5) Reproductive potential
6) Repellent
7) Antidote
8) Phoresy

(P.T.O.)

Q.12 a) Match the pairs:

'A"	"B"
1) Bt	a) White fly
2) Genetic control	b) Potato tuber moth
3) Yellow sticky trap	c) E.F.Knipling
4) *Copidosoma koehleri*	d) Stomach poison

b) State true of false:

1) Natural enemies are density dependent phenomenon.
2) Organophosphorus insecticides inhibit the cholinesterase enzyme.
3) Sucking pests are controlled with systemic insecticides.
4) Bt cotton is used to control sucking pests.

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	**: IV (New)**	**Term**	**: II**	**Academic Year**	**: 2010-11**
Course No.	: ENTO 242	**Title**	**:**	**Insect Ecology, Integrated Pest Management and Beneficial Insects**	
Credits	: 3 (2+1)				
Day & Date	: Thursday, 21.04.2011	**Time**	**:**	14.00 to 17.00	**Total Marks : 80**

Note :
1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Define Insect Ecology and explain with sutable examples the effect of biotic factors on insects.

Q.2 Define Pest. Enlist different methods of pest control. Explain in brief the mechanical method with suitable examples.

Q.3 Define Microbial control. Explain the role of microorganisms in pest management with examples.

Q.4 Describe the scope and importance of Integrated Pest Management. Enlist steps followed in IPM of cotton.

Q.5 Write laboratory procedure for mass production of *Chrysoperla carnea.*

Q.6 Define insecticide. Classify insecticides on the basis of mode of entry with suitable examples.

Q.7 Write short notes (Any four):
1) Pest Surveillance and forecasting
2) Rearing of Mulberry silkworm
3) Balance of Nature
4) Root knot nematode
5) Insecticide Act, 1968

Q.8 Define adjuvant. Explain necessity of insecticidal formulations.

Q.9 Enlist different species of silkworm along with their hosts ad explain rearing of Tassar silk worm.

Q.10 Enlist types of pests State the causes of outbreak of pests in agro-ecosystem.

SECTION "B"

Q.11 Define the following terms:

1) LC_{50} 2) ETL
3) Environmental resistance 4) Antixenosis
5) Hyper parasitism 6) Key pest
7) Autocidal control 8) Parasitoid

Q.12 Do as directed.

1) The Insecticide Act was enforced in the year _____.
2) The author (s) of the book 'Elements of Insect Ecology' is / are _____.
3) DD-136 is an association between _____and _____.
4) Insecticidal formulation 'EC' means _____.
5) Appliances used for application of dust formulations are called as _____.
6) Name two food plants of lac insect.
7) Give the scientific name of Australian lady bird beetle _____.
8) Sterile male technique for insect control was first invented by _____.

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	**: IV(New)**	**Term**	**: II**	**Academic Year**	**: 2009-10**
Course No.	**: ENTO 242**	**Title**	**: Insect Ecology, Integrated Pest Management and Beneficial Insects**		
Credits	**: 3(2+1)**				
Day & Date	**: Saturday, 24.4.2010**	**Time**	**: 14.00 to 17.00**	**Total Marks**	**: 80**

Note : 1. Solve **ANY FIVE** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Define the term 'Insecticide'. Give the classification of insecticides on the basis of chemical composition along with at least one example of each group.

Q.2 Define the term 'pest'. Explain in detail the cultural methods of pest control with suitable examples.

Q.3 State the five important species of rat with scientific names. Give the nature of damage and control measures of rodents.

Q.4 a) Enlist the characteristics of the ideal parasitoid.
b) Give the important objectives of 'Insecticide act'.

Q.5 Explain in detail the mass multiplication technique for *Trichogramma.*

Q.6 a) Define the term 'pheromone'. Write in short about the different types of the pheromones.
b) Define the term 'Sericulture'. Write in short about the rearing of mulberry silk worm.

Q.7 Write short notes (Any two):
1) Abiotic factors 2) Attractants 3) Mechanism of resistance

SECTION "B"

Q.8 Define the followings:
1) Apiculture
2) Repellent
3) IPM
4) Ecology
5) Regular pest
6) Legislative control
7) Phytosanitory certificate
8) Reproductive potential
9) ETL
10) Ecosystem

Q.9 Answer the following in one sentence:
1) State the two important host plants of lac insect.
2) What is HaNPV?
3) What do you mean by DD-136?

(P.T.O.)

4) Give correct technical name of BHC.
5) Who is the father of sterile male technique?
6) Which enzyme is secreted by Neurosecretory cells?
7) State two important species of earthworm.
8) State the universal antidote.
9) State the name of predator used for the control of sugarcane pyrilla.
10) Give two names of commonly used entomopathogenic fungi.

Q.10 Match the pairs:

"A"	"B"
1) Insecticide act	a) Acaricide
2) Bagging of fruits	b) 1968
3) *Apis dorsata*	c) Mechanical control
4) Nemagon	d) Indian bee
5) *Apis serana indica*	e) *Morus alba*
6) Sulfur	f) Nematicide
7) Destructive Insects and Pests Act	g) Physical method
8) Mulbery silkworm	h) Potato tuber moth
9) Sun drying	i) Rock bee
10) *Kopidosoma koehleri*	j) 1914

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **IV (New)**	**Term**	: **II**	**Academic Year**	: **2012-13**
Course No.	: ENTO 242	**Title**	: **Insect Ecology, Integrated Pest Management and Beneficial Insects**		
Credits	: 3 (2+1)				
Day & Date	: Thursday, 18.04.2013	**Time**	: 14.00 to 17.00	**Total Marks**	: **80**

Note :
1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Write the procedure of mass production of *Chrysoperla carnea* in the laboratory.

Q.2 a) State the characteristics of ideal parasitoid.

b) Define the term 'Pheromone'. Write in brief about the different types of pheromone.

Q.3 Enlist the recent methods of pest management? Explain in detail about the antifeedants.

Q.4 Define the term 'Insecticide'. Give the classification of insecticides on the basis of chemical composition with one example of each group.

Q.5 Define the term 'Pest'. Describe the factors responsible for outbreak of insect pests.

Q.6 Define the term 'Insect Ecology'. Explain with suitable examples the effect of abiotic factors on insects.

Q.7 State five important species of rat with scientific name. Write in detail the control measures of rodents.

Q.8 Enlist different methods of pest control. Explain the cultural method of pest control with suitable examples.

Q.9 a) Explain the role of entomopathogenic fungi in pest management.

b) Comment on 'Concepts of Integrated Pest Management.'

Q.10 Write short notes (Any Two)

1) Rearing of mulberry silkworm
2) Mechanism of host plant resistance
3) Important objectives of Insecticide Act, 1968

SECTION "B"

Q.11 Define the following terms:

1) Synergist
2) Endemic pest
3) ETL
4) Biological control
5) Apiculture
6) Legislative control
7) Biotic potential
8) Life table

(P.T.O.)

Q.12 Do as directed.

1) State the composition of universal antidote.
2) What do you mean by 'Superparasitism'?
3) Write the scientific name of lac insect.
4) What is LC 50?
5) State one example of animal origin insecticide.
6) Who is the founder of sterile male technique?
7) State two species of earthworm for vermiculture.
8) Who wrote the novel 'Silent Spring'?

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **IV (New)**	**Term**	: **II**	**Academic Year**	: **2013-14**
Course No.	: ENTO 242	**Title**	: **Insect Ecology, Integrated Pest Management and Beneficial Insects**		
Credits	: 3 (2+1)				
Day & Date	: Wednesday, 30.04.2014	**Time**	: 14.00 to 17.00	**Total Marks**	: **80**

Note : 1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Define the term Insect Ecology. Explain the effect of abiotic factors on insects with suitable examples.

Q.2 State the five important species of rat with scientific names. Give the control measures of rodents in details.

Q.3 Define parasitoid. Explain in detail the mass multiplication technique for *Trichogramma.*

Q.4 What is biological control? Distinguish between predator and parasite.

Q.5 Define IPM. Enlist the different methods of pest control and explain the mechanical control in detail.

Q.6 what is insecticide? Write down the properties of ideal insecticides or pesticides.

Q.7 Write short notes on (Any Two)
1) Vertical and horizontal resistance
2) Mechanism of HPR
3) Concepts of IPM

Q.8 a) Define apiculture and explain the duties perform by worker bee.
b) Define sericulture and write down the rearing of mulberry silkworm.

Q.9 a) Write down the techniques in biological control.
b) Classify the insecticides on the basis of mode of entry.

Q.10 a) Enlist the formulations of insecticides and describe any three
b) Describe the types of pheromones.

SECTION "B"

Q.11 Fill in the blanks.
1) The animals do not have precise mechanism to regulate their body temperature are called as _____.
2) Insects which are active at dusk are called as _____.
3) When both the symbionts are benefited by the association it is known as _____.
4) _____ it is the average number of eggs laid by a female in its life.

(P.T.O.)

5) _____ pests have close association with that particular crop.

6) Pests occurs on a few isolated localities are treated as _____.

7) _____level is the lowest population at which the pest will cause economic damage.

8) When resistance is governed by a few genes, it is called _____resistance.

Q.12 a) State True or False.

1) NPPTI renamed as NIPHM recently during 2008.

2) NCIPM was established at New Delhi in 1988.

3) Crop rotation is the practice of mechanical method of pest control.

4) DDT was first synthesized by German scientist Othmar Ziedler in 1874.

b) Choose the correct answer.

1) Aluminum phosphide is a insecticide/ acaricide /rodenticide/ fungicide.

2) Hand compression sprayer is hydraulic/ pneumatic/ power/ none of these.

3) Rangeeni is the strain of silk moth/ honey bee/ butterfly/ Lac insect.

4) Apple factor acts as feeding deterrent/ repellent/ attractant/ poison bait.

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	**: IV (New)**	**Term**	**: II**	**Academic Year**	**: 2014-15**
Course No.	**: ENTO 242**	**Title**	**: Insect Ecology, Integrated Pest Management and Beneficial Insects**		
Credits	**: 3 (2+1)**				
Day & Date	**: Monday, 11.05.2015**	**Time**	**: 14.00 to 17.00**	**Total Marks**	**: 80**

Note : 1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Define Insect ecology. Describe in detail effect of abiotic factors on insect with examples.

Q.2 Define IPM. Enlist tools of IPM. Describe in detail cultural methods of pest control.

Q.3 Describe in detail procedure of mass production of *Ha*NPV.

Q.4 Define Pest outbreaks. Describe in detail causes of pest outbreaks.

Q.5 Write short notes on (Any two).
1) Bee keeping 2) Vermi compost 3) Botanical pesticides

Q.6 Define Parasitoid. Describe procedure for mass multiplication of *Trichogramma*.

Q.7 Define Sericulture. Describe in detail rearing of silk worm for production of cocoons.

Q.8 a) Define Pesticides. Classify the insecticides on basis of mode of entry.
b) Give advantages and disadvantages of chemical method of pest control.

Q.9 a) Define Biological control. Enlist any eight potential bio-agents used in pest management.
b) Give characteristics of ideal parasites.

Q.10 a) Enlist different types of formulations with suitable example and describe any one.
b) What are the different techniques of pesticides application.

SECTION "B"

Q.11 Fill in the blanks.
1) Dimethoate is _____ type of insecticide.
2) Bagging of fruits is a _____ method of pest control.
3) Insecticide Act was passed by Govt. of India in_____.
4) _____ is a parasite used against Sugarcane Pyrilla.
5) _____ is an example of granular insecticide.
6) Indian Lac Research Institute is located at_____.
7) National Center for Integrated Pest Management is located at_____.
8) _____ is the lowest population level at which the pest will cause economic damage.

(P.T.O.)

Q.12 Match the following pairs.

"A"		"B"	
1)	Rodenticide	a)	Viral insecticide
2)	Lac insect	b)	*Chilo partellus*
3)	Gossyplure	c)	Warfarin
4)	*Ha*NPV	d)	Pheromone
5)	*Trichogramma japonicum*	e)	*Laccifera lacca*
6)	*Pongamia pinnata*	f)	Diflubenzuron
7)	Chitin synthesis inhibiter	g)	Botanical insecticide
8)	Neem seed extract	h)	Karanjin

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