

**Dr. PANJABRAO DESHMUKH KRISHI VIDYAPEETH, AKOLA**  
**SEMESTER END THEORY EXAMINATION**  
 B.Sc. Agriculture (Hons.)  
 (Model Answer)

Semester	:	IV New	Term	:	II	Academic Year	:	2020-21
Course No.	:	ENTO-243	Title	:	Pest of Horticultural Crops and their Management			
Credits	:	2(1+1)						
Day & Date	:	28.11.2021	Time	:	1.00 Hr	Total Marks	:	40

**Note :** 1) Solve ANY FOUR questions from SECTION-A  
 2) Solve ANY SIX questions from SECTION-B  
 3) ALL questions from SECTION-C are compulsory  
 4) Send the PDF file of answer sheet to the email id of respective course teacher

<b>SECTION-A</b>	
<b>(Write the answers in 4-5 sentences only. Each question carries 4 marks)</b>	
Q.1	Write the scientific name, site of oviposition, damaging stage and non insecticidal management practices for brinjal shoot and fruit borer. <b>Scientific name of brinjal shoot and fruit borer:</b> <i>Leucinodes orbonalis</i> (1M) <b>Site of oviposition:</b> on leaves, tender shoots, flowers and developing fruits (1M) <b>Damaging stage:</b> Caterpillar (1M) <b>Non insecticidal management practices:</b> Crop rotation, Resistant varieties, Collection and destruction of damaged shoots and fruits, Light traps, <i>T. chilonis</i> , <i>B. thuringiensis</i> . (1M)
Q.2	Mention the damaging stage and plant parts damaged by tomato leaf miner, <i>Tuta absoluta</i> and chilli thrips. Damaging stage of tomato leaf miner: Caterpillar. (1M) Plant parts damaged: Leaves, tender stems and fruits. (1M) Damaging stage of chilli thrips: Nymphs and adults. (1M) Plant parts damaged: Leaves, buds and fruits. (1M)
Q.3	Write the scientific name, site of oviposition, site of pupation and typical damage symptoms of mango fruit fly <b>Scientific name of mango fruit fly:</b> <i>Bactrocera dorsalis</i> (1M) <b>Site of oviposition:</b> Just beneath the skin (rind) of the fruit. (1M) <b>Site of pupation:</b> In the soil (1M) <b>Typical damage symptoms:</b> The maggots feed on fruit pulp and convert it into bad smelling, discoloured semi liquid mass; unfit for human consumption. Damage results in fruit drop and liquid oozes out from the fruit upon pressing. (1M)
Q.4	Write in brief the nature of damage and management practices for citrus black fly or citrus fruit sucking moth. <b>Citrus black fly nature of damage:</b> Nymphs and adults suck plant sap resulting in curling of leaves and premature fall of flower buds and developing fruits. Nymphs secrete honeydew on which sooty mould grows (Kolshi). Fruits are insipid in taste and blackened. (2M) <b>Management practices:</b> Avoid close planting, water logging or stress conditions. Avoid excessive irrigation and application of nitrogenous fertilizers. Spray neem oil 3% or quinalphos 25 EC 2.0 L or monocrotophos 36 SL 1.5 L or ethion 50 EC 2.5 L or triazophos 40 EC 3.0 L or per ha. Only first nymphal instar is vulnerable to insecticides. The stage of 50% eggs hatching is the most ideal timing for spray application. (2M)

	<p><b>Citrus fruit sucking moth nature of damage:</b> Adult moths pierce the fruits and suck the juice with typical pin-hole in fruits. Bacterial and fungal infections occur at the site. Fruit turns yellow, drops from tree and looks like a premature fruit, most of the fruits are lost. <b>(2M)</b></p> <p><b>Management practices:</b> Destroy the weed host (gulvel, wasanwel), Apply smoke to repel adult moth, use light traps to attract adults. Cover the fruit with perforated polybags. Bait with fermented molasses/ jaggery + malathion, dispose off fallen fruits, Spray with any broad spectrum insecticide at the time of maturity of fruits. <b>(2M)</b></p>
Q.5	<p>Write about the damaging stage and typical damage symptoms of (Any two) :</p> <p>A) Grapevine flea beetle B) Spiraling white fly on guava C) Banana aphids.</p> <p><b>Damaging stage of grapevine flea beetle:</b> Adults and grubs <b>(1M)</b></p> <p><b>Typical damage symptoms:</b> Adult makes small holes on tender leaves, on swelling buds and tender shoots soon after pruning of vines. The grubs damage the roots. <b>(1M)</b></p> <p><b>Damaging stage of spiraling white fly on guava:</b> Nymphs and adults <b>(1M)</b></p> <p><b>Typical damage symptoms:</b> Nymphs and adults suck the plant sap extensively, resulting in curling, yellowing, drying and shedding of the leaves. Whiteflies excrete honeydew attracting sooty mould affecting photosynthesis. <b>(1M)</b></p> <p><b>Damaging stage of banana aphids:</b> Nymphs and adults <b>(1M)</b></p> <p><b>Typical damage symptoms:</b> Aphids in colonies suck the sap from leaf axils and pseudostems. The affected leaves become brittle and small. Aphids produce honeydew which attracts sooty mould interfering with photosynthesis. Transmits Bunchy top of banana; a viral disease. <b>(1M)</b></p>
<b>SECTION-B</b>	
<b>(Write the answers in one sentence only. Each question carries 2 marks)</b>	
Q.6	<p>(Answer in one sentence/Do as directed/Define)</p> <p>a) Enlist the host crops of rhizome fly, Mimegralla coeruleifrons and pollu beetle, Longitarsus nigripennis</p> <p><b>Host crops of rhizome fly:</b> Turmeric and Ginger. <b>(1M)</b></p> <p><b>Host crops of pollu beetle:</b> Black pepper <b>(1M)</b></p> <p>b) Enlist the major cultural practices for management of plant parasitic nematodes.</p> <p><b>cultural practices:</b> Selection of healthy seed material, Adjusting the time of planting, Fallowing, Deep ploughing during summer, Manuring, Flooding, Trap cropping, Antagonistic crops, Removal and destruction of infected plants and Use of resistant varieties. <b>(Any 4 : 2M)</b></p> <p>c) Enlist the hosts and nature of damage of diamondback moth.</p> <p><b>Hosts of diamondback moth:</b> Cabbage, Cauliflower, Mustard, Broccoli, other crucifers. <b>(1M)</b></p> <p><b>Nature of damage:</b> First instar larvae mine the leaves (white patches). Later instars while feeding make holes on leaves. In heavy infestations little more than the leaf veins are left. <b>(1M)</b></p> <p>d) Mention the site of oviposition and pupation of red pumpkin beetle.</p> <p><b>Site of oviposition of red pumpkin beetle:</b> In soil <b>(1M)</b></p> <p><b>Site of pupation:</b> In soil <b>(1M)</b></p> <p>e) Write the scientific name and damaging stage of Aonla (Indian gooseberry) bark borer.</p> <p><b>Scientific name of Aonla (Indian gooseberry) bark borer:</b> Indarbella sp. <b>(1M)</b></p> <p><b>Damaging stage:</b> Caterpillar <b>(1M)</b></p> <p>f) Write the site of oviposition and damaging stage of coconut rhinoceros beetle.</p> <p><b>Site of oviposition of coconut rhinoceros beetle:</b> In manure pits <b>(1M)</b></p> <p><b>Damaging stage:</b> Adults <b>(1M)</b></p> <p>g) Write the site of oviposition and most effective non-chemical practice for the management of pomegranate fruit borer.</p> <p><b>Site of oviposition of pomegranate fruit borer:</b> Calyx of flowers and on tender fruits. <b>(1M)</b></p> <p><b>Non-chemical practice:</b> Bagging of developing fruits with cloth or paper bag. <b>(1M)</b></p>

SECTION-C			
(Choose the correct option. Each question carry 1 mark)			
Q.7	1) Metaldehyde poison bait is used for the management of		
	a) Land crabs	b) <b>Snails and slugs</b>	
	c) Rodents	d) Army worm	
	2) Elongated petiole referred as rat tail is typical damage symptom of		
	a) Chilli thrips	b) Chilli white fly	
	c) <b>Chilli mites</b>	d) Chilli aphids	
	3) Curling of leaves, silvery white leaves, leaf tip discoloration and gradual drying from tip downwards are the typical damage symptoms of		
	a) <b>Onion thrips</b>	b) Onion maggot	
	c) Cassava scale	d) Mites	
	4) Stem tunneling, bored tubers, rotting of tubers are typical damage symptoms of		
	a) Onion maggot	b) <b>Sweet potato weevil</b>	
	c) Potato cutworm	d) Stem borer	
	5) Order of mustard saw fly on cruciferous crops is		
	a) Diptera	b) <b>Hymenoptera</b>	
	c) Hemiptera	d) Ephemeroptera	
	6) Damaging stage of Spodoptera on Colocassia and Moringa is		
	a) Adults	b) <b>Caterpillar</b>	
	c) Caterpillar and adults	d) Nymph and Adults	
	7) Site of oviposition for fruit fly on cucurbitaceous vegetables is		
	a) On tender leaves	b) In soil	
	c) On buds and flowers	d) <b>Under the rind of the fruit</b>	
	8) Pest specific to grapes is		
	a) <b>Flea beetle /Udadya beetle</b>	b) Thrips	
	c) Mealy bugs	d) Mite	
	9) Which of the following statements are correct with reference to Chickoo moth, Nephopteryx eugraphella.		
	a) Webbed leaves in a bunch	b) Clusters of dried shoots	
	c) Bored flower buds and tender fruits.	d) <b>All of the above</b>	
	10) Arthropod vector of bunchy top disease of banana is		
	a) Thrips - Thrips florum	b) Lacewing bug - Stephanitis typicus	
	c) <b>Aphid - Pentalonia nigronervosa</b>	d) Mites – Tetranychus sp.	
	11) Ferrolure is used in trap to attract .....in coconut.		
	a) Rhinoceros beetle	b) <b>Red palm weevil</b>	
	c) Rats	d) Black headed caterpillar	
	12) The monophagous pest of mango		
	a) <b>Mango stem borer</b>	b) Mango fruit fly	
	c) Mango mealy bugs	d) Mango stone weevil	