MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **III (New)**	**Term**	: **I**	**Academic Year**	: **2010-11**
Course No.	: ENTO 231	**Title**	: **Insect Morphology and Systematics**		
Credits	: 3(2+1)				
Day & Date	: Friday, 22.10.2010	**Time**	: 9.00 to 12.00	**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 What is sclerotization? Explain the moulting process in insects. State the cuticular appendages and processes with examples.

Q.2 Enlist different types of mouth parts in insects with examples. Describe piercing and sucking type of mouth parts.

Q.3 State different types of sense organs and sound producing organs with their location and functions in insects.

Q.4 State types of reproduction in insects. Describe female reproductive system.

Q.5 Give the characters of Phyllum Arthropoda and differentiate between Class Insecta and Class Arachmid.

Q.6 What is binomial nomenclature? State its general rules for classification of insects.

Q.7 State the characters of Order Coleoptera and Isoptera with one family and example.

SECTION "B"

Q.8 Define the following terms.

1) Tagmata 2) Notum 3) Spurs 4) Speciation
5) Endoskeleton 6) Gena 7) Fecundity 8) Insect morphology
9) Prognathous 10) Ostia

Q.9 Answer in one sentence.

1) State the function of styli.
2) Which are the major parts of insect brain?
3) What is meant by polyembryony?
4) State the function of mushroom glands.
5) How many legs are present in Compodiform larvae?
6) State the class of mites.
7) What is meant by aestivation?
8) Secondarily wingless refers to what?
9) In Raptorial type which pair of leg is modified?
10) What is meant by hypermetamorphosis?

(P.T.O.)

Q.10 Fill in the blanks.

1) IOBC is located at_____.
2) NABAII stands for_____.
3) Sanskrut dictionary 'Amarkosh' refers _____ words for insects in early history.
4) Indian Museum is located at_____.
5) TVR Ayyar wrote _____book in Entomology.
6) _____is the Phylum considered as ancestors of the insects.
7) NPPTI stands for_____.
8) Insect abundance depends on _____ and _____Biotic factors.
9) _____ Part of the leg is modified for digging.
10) Tympanum is present on_____in Lepidopterous moth.

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **III (New)**	**Term**	: **I**	**Academic Year**	: **2012-13**
Course No.	: ENTO 231	**Title**	: **Insect Morphology and Systematics**		
Credits	: 3(2+1)				
Day & Date	: Monday, 29.10.2012	**Time**	: 9.00 to 12.00	**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 a) Enlist various reasons for insect dominance. (4)

b) Give contribution of following scientists in the field of Entomology. (4)

i) V.B.Wigglesworth ii) Carlous Linnaeus

iii) S.Pradhan iv) Hemsingh Pruthi

Q.2 a) Enlist different classes of Phylum Arthropoda with suitable examples. (3)

b) State importance characteristics of Class Insecta. (5)

Q.3 a) Draw well labeled diagram of insect integument. (4)

b) Mention different functions of cuticle. (4)

Q.4 Draw well labeled diagram of insect head capsule and enlist various sclerites and sutures of head capsule. (8)

Q.5 a) Enumerate various modes of reproduction in insects with suitable example. (3)

b) Explain with suitable diagram male reproductive system in insect. (5)

Q.6 a) Give the distinguishing characteristics of Order Coleoptera and state any four agriculturally important families of Coleoptera with insect example. (6)

b) Place the following insects into their respective orders. (2)

i) Mustard sawfly ii) Lemon butterfly

iii) Fruit fly iv) Whitefly

Q.7 a) Give an account of binomial nomenclature with general rules used in insect classification. (5)

b) Give systematic position of Indian Honey Bee (*Apis indica*) in animal kingdom. (3)

Q.8 Differentiate between. (Any Two) (8)

1) Apterygota and Pterygota

2) Caelifera and Ensifera

3) True legs and Prolegs

Q.9 a) Describe various types of metamorphosis in insect with suitable examples. (6)

b) Give the significance of metamorphosis in insects. (2)

(P.T.O.)

Q.10 a) Explain hypothetical insect wing venation constructed by Comstock and Needham with a neat sketch. (5)

b) Give wing modifications in insects with suitable examples. (3)

SECTION "B"

Q.11 Define the following terms. (8)

1) Taenidia
2) Ecdysis
3) Propodeum
4) Cervix
5) Diapause
6) Taxon
7) Species
8) Synapse

Q.12 Do as directed. (8)

1) Antennae are absent in Order _____. (Fill in the blank)
2) Give full form of NBAII.
3) Mention the author (s) of the book 'Insect Physiology and Anatomy'.
4) Starting from basal segment, arrange the following segments in proper order Tarsus, Coxa, Femur, Trochanter, Tibia.
5) In House fly the functional mouth parts are made of **labrum / maxillae / labium**. (Select proper option)
6) Peritrophic membrane is present in **solid feeding / liquid feeding** insects (Select proper option)
7) All the spiracles are non-functional in **apneustic / hemipneustic / Holopneustic** type of respiratory system. (Select proper option)
8) Physogastry condition is present in _____ (Fill in the blank.)

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **III (New)**	**Term**	: **I**	**Academic Year**	: **2011-12**
Course No.	: ENTO 231	**Title**	: **Insect Morphology and Systematics**		
Credits	: 3(2+1)				
Day & Date	: Saturday, 24.09.2011	**Time**	: 9.00 to 12.00	**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 the distinguishing characteristics of Phylum Arthropoda.

Q.2 Describe in detail the features responsible for dominance of insects.

Q.3 Explain piercing and sucking type of mouthparts with figure.

Q.4 Draw the figure of insect wing showing margins and angles. Enlist different modifications with examples.

Q.5 Describe male reproductive system of cockroach.

Q.6 Define metamorphosis. Describe the types of metamorphosis with suitable examples.

Q.7 Enlist the important characters of Order Hemiptera and name at least four families with examples.

Q.8 Write the characteristics of Order Lepidoptera and name at least four families with examples.

Q.9 a) Give the classification of insects on the basis of economic importance (Popular classification).

b) What are the different types of larvae?

Q.10 Answer the following.

1) Differentiate between Exopterygota and Endopterygota.
2) Differentiate between Moth and Butterfly.
3) Give characters of Order Dictyoptera.
4) Differentiate between Ensifera and Caelifera.

SECTION "B"

Q.11 Do as directed.

1) Define insect.
2) Give the location of Johnston's organ.
3) Which type of mouthparts are present in house fly?
4) Who published 'Systema Naturae' book?

(P.T.O.)

5) What is the function of Malpighian tubules in insect?
6) Which is the order of Family Coccinellidae?
7) Where is the headquarter of CIB?
8) Give the functions of proventriculus.

Q.12 Fill in the blanks.

1) Chitin is present in _____ layer of integument.
2) Ostia is the part of _____ system of insect.
3) The author of 'General Entomology' book is _____.
4) Locust belongs to _____ order.
5) Cerci are present on _____ part of insect body.
6) Both pairs of wings are equal in _____ order.
7) Insecticide Act came into force from _____ in India.
8) Family Noctuidae belongs to _____ order.

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **III (New)**	**Term**	: **I**	**Academic Year**	: **2013-14**
Course No.	: ENTO 231	**Title**	: **Insect Morphology and Systematics**		
Credits	: 3(2+1)				
Day & Date	: Friday, 25.10.2013	**Time**	: 9.00 to 12.00	**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 different types of mouthpart observed in insects with example. Explain the mouthparts of cockroach along with well- labeled diagram.

Q.2 Describe the female reproductive system of cockroach.

Q.3 Define "metamorphosis". Describe types of metamorphosis with suitable examples.

Q.4 Describe the insect integument with well-labeled diagram and mention its functions.

Q.5 Define "Entomology" Explain with suitable examples how insects are related to man.

Q.6 Write short notes on: (Any Two)
1) Insect sense organs. 2) Typical leg of an insect.
3) Enlist the characters of class insecta.

Q.7 Draw well- labeled diagram of typical antenna of an insect. Enlist types of antenna with one example each.

Q.8 State the distinguishing characters of order Lepidoptera. Enlist four families of agricultural importance along with one example.

Q.9 Describe wing- coupling apparatus observed in insects with examples.

Q.10 State the distinguishing characters of order Hemiptera. Enlist four families of agricultural importance along with one example

SECTION "B"

Q.11 Define the following terms.

1) Species	2) Synapse	3) Pterothorax	4) Taxonomy
5) Ecdysis	6) Propodeum	7) Systematics	8) Paedogenesis

Q.12 Answer in one sentence.
1) State the order of mustard sawfly.
2) Which gland secretes juvenile hormone?
3) State the function of malpighian tubules.
4) Who is called as the father of taxonomy?
5) Termite belongs to which order?
6) State the function of peritrophic membrane.
7) Crab belongs to which class?
8) State the type of wings present in rhinoceros beetle.

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **III (New)**	**Term**	: **I**	**Academic Year**	: **2015-16**
Course No.	: ENTO 231	**Title**	: **Insect Morphology and Systematics**		
Credits	: 3(2+1)				
Day & Date	: Saturday, 17.10.2015	**Time**	: 9.00 to 12.00	**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 Describe the female reproductive system of cockroach.

Q.2 Enlist the distinguishing characters of order Colepotera along with five important families and give one example of each family.

Q.3 Define Metamorphosis. Describe types of metamorphosis with suitable example.

Q.4 Write short notes on (Any two).
1) Insect molting
2) Types of Pupa in insects
3) Insect sense organs

Q.5 Enlist different types of mouth parts observed in insects with example. Explain the mouth parts of cockroach with figure.

Q.6 Describe the insect integument with well-labeled diagram and mention its functions.

Q.7 Draw a figure of typical leg of an insect. Enlist types of legs with one example each.

Q.8 Define 'Entomology'. Explain with suitable example how insects are related to man.

Q.9 Describe wing-coupling apparatus observed in insects with examples.

Q.10 Describe different endocrine and exocrine glands in insects.

SECTION "B"

Q.11 Define the following terms.
1) Apolysis
2) Suture
3) Synapse
4) Taxonomy
5) Species
6) Pterothorax
7) Insect morphology
8) Aestivation

Q.12 State the order of the following insects.
1) Rhinoceros beetle
2) White fly
3) Honey bee
4) Locust
5) Fruit fly
6) Chrysopa
7) Dragon fly
8) Diamond black moth

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