



Final Exam. For 2<sup>nd</sup> year students  
" Molecular Biology " May 2024



Zoology Department

"Entomology & Biological control" 201ش

Time: 1 hour

1/6/2024

Mark: 60

Answer the Following Questions:

الإمتحان في صفتين.

Question one: Choose the correct answer e. g. 3 - d (10 mark)

1	Which structure is NOT part of the head capsule?
a	Pronotum
b	Clypeus
c	Tentorium
d	Vertex
2	Which structure is INCORRECTLY paired with its function?
a	antenna -- tactile
b	Mandible -- grinding
c	Malpighian tubules -- excretion
d	hypopharynx -- cutting
3	An insect's head is specialized for:
a	Reproduction and digestion
b	Ingestion and perception
c	Orientation and locomotion
d	Adaptation and respiration
4	According to metamorphosis, butterflies are grouped as .....
a	ametabolous
b	holometabolous
c	paurometabolous
d	hemimetabolous
5	To which body segment are the halteres attached?
a	Prothorax
b	Mesothorax
c	Metathorax
d	First abdominal
6	The hypopharynx separates the mouth opening from the:
a	Cibarium
b	Labrum
c	Mandibles
d	Salivarium
7	The tibia lies between:
a	The tarsus and the femur
b	The femur and the coxa
c	The coxa and the trochanter
d	The trochanter and the femur
8	The dorsal sclerite of each abdominal segment is called a:
a	Coxite
b	Pleurite
c	Tergite
d	Sternite



9	Of the structures listed, which one lies just above the anus in a typical insect?
a	Genital opening
b	Paramere
c	Cercus
d	Epiproct
10	Which mouthparts bear palps?
a	Labrum and labium
b	Labium and maxillae
c	Maxillae and mandibles
d	Mandibles and labrum

**Question Two:**

(30 mark)

a) Match each characteristic in the left column with its correct term in the right column.

e. g. 1-G

(10 mark)

1	The lowest population density, which will cause economic damage.	A	Hyperparasite
2	The developmental process by which a first-instar immature stage is transformed into the adult.	B	Collembola
3	It is the interference of man for the control of insect population.	C	Applied control
4	Is a parasitoid which develops on another parasitoid.	D	Multiple parasites
5	More individuals of a given parasitoid species occur in a host individual.	E	Metamorphosis
6	Microorganisms include fungi, bacteria and virus that use insects as host organisms and usually kill them.	F	Economic damage
7	Springtail is always associated with .....	G	Biological control
8	Ovipositor performs for digging tunnels as in .....	H	Superparasitism
9	Predaceous insects feeding almost exclusively on a single species.	I	Economic injury level
10	The amount of injury, which will justify the cost of artificial control measures.	J	Monophagous
		k	locusts
		L	Entomopathogen

b) Describe: A. Where you would find this structure and

(20 mark)

B. What is its principal function?

	Structure	Where	Principal function
1	Haustellum		
2	Pollen brush		
3	Tracheal gills		
4	Sheath & stylets		
5	Hamula		
6	Elytra		
7	Flagellum		
8	Flabellum		
9	Clinging legs		
10	Vannal fold		

(20 mark)

**Question Three:**

A. Enumerate only five of promising species characteristics that are often evident prior to introduction in biological control? (10)

B. Discuss the role of injurious insects in our life? (10)

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