

**FIJI NATIONAL UNIVERSITY**

College of Agriculture, Fisheries & Forestry
School of Agricultural Sciences and Forestry
Department of Entomology & Plant Pathology
Bachelor of Science in Agriculture - Year III
Final Examination
Trimester I-2018

NEM 601: Introductory Nematology

Time Allowed: 3.00 hours plus (10 minutes reading time) Total Marks: 100

INSTRUCTIONS:

1. This paper consists of six pages including two pages Answer Sheet.
2. Please check to see that all your paper is complete.
3. Answer all the Objective Type Questions on the Answer Sheet and Descriptive Type Questions in the Answer Booklet only.
4. No written or printed material and mobile phones are allowed in the examination hall
5. Marks allocated for each question appears at the side of each question so allocate your time accordingly.
6. This paper is divided into Two parts. First part contains Objective Type Questions which is having four Sections – A, B, C, and D. All questions of this part are compulsory. Second part is Descriptive Type which is having **eight (8)** questions. Attempt any six questions from this part.

I. OBJECTIVE TYPE QUESTIONS (40 Marks)

To be answered only on the Answer Sheet.

Section A: Fill in the blanks. (10 Marks)

Section B: Multiple choice Questions. (10 Marks)

Section C: Matching type. (10 Marks)

Section D: Write True or False. (10 Marks)

II. DESCRIPTIVE TYPE QUESTIONS (60 marks)

There are **eight (8)** descriptive type questions provided, please attempt any six (6) questions only and write on the Answer Booklet. Answer every question from a new page to facilitate evaluation.

I. OBJECTIVE TYPE QUESTIONS.**Total Marks: 40****A. Fill in the blanks.****(10x1=10 Marks)**

1. The word 'Nematode' has been derived from words- Nema meaning thread, and Oides meaning resembling or form.
2. About..... species of nematodes have been recorded so far out of an estimated.....
3. Annual crop losses due to nematode obligate parasites have been estimated to be about \$..... world wide.
4. The study of nematodes that are parasite of man and animals is known as
5. The nematode parasites of animals (livestock etc.) are studies by.....
6. The semi-digested food in nematode is ingested mainly due to pumping action of the
7. The scientific name of root knot nematode is.....
8. discovered the first plant parasitic nematode in wheat during 1743.
9. A majority of the phyto-nematodes lives in soil as
10. Female reproductive system having two testes is called.....

B. Multiple choice questions: Select the correct answer. (10x1=10 Marks)

1. Nematodes representof all life forms on the ocean floor.

A.	60%	B.	70%
C.	80%	D.	90%
2. The root knot nematodes produces.....on the root

A.	lesions	B.	galls
C.	necrosis	D.	Stunted appearance
3. Nematodes hardly move..... per year under their own powers of locomotion

A.	3 meters	B.	2 meter
C.	5 meters	D.	One meter
4. *Tylenchulus semipenetrans* is found on-----

A.	Wheat	B.	Paddy
C.	Citrus	D.	French bean
5. The scientific name of giant intestine worm is

A.	<i>Ascaris lumbricoides</i>	B.	<i>Meloidogyne javanica</i>
C.	<i>Tylenchulus semipenetrans</i>	D.	<i>Anguina tritici</i>

6. The larva of seed gall nematode can remain viable in inactive stage for as many as.....

A.	38 years	B.	24 years
C.	28 years	D.	30 ears

7. *Placentonema gigantissima* parasitizing the placentia of sperm whale is about.....

A.	9 meter long	B.	7 meter long
C.	6 meter long	D.	5 meter long

8. discovered root-knot nematode, *Meloidogyne* spp. on cucumber plants in greenhouse in England during 1855.

A.	Steinbach	B.	Butschli
C.	Phototaxis	D.	Berkele

9. Bursa is called

A.	Annule	B.	Cardia
C.	Amphid	D.	Caudal alae

10. Underlying the cuticle is ----- layer

A.	Stoma	B.	Renette glands
C.	rectum	D.	Hypodermis

C. Match the following:

(10x1=10 Marks)

1.	Vinegar eelworm	A.	Nematode larva
2.	Potato cyst nematode	B.	<i>Ascaris lumbricoides</i>
3.	Juvenile	C.	Borellus
4.	Female germ cell	D.	Intestine
5.	<i>Heterodera avenae</i>	E.	Phyto-nematodes
6.	Giant intestine worm	F.	Epidermis
7.	Plant parasitic nematode	G.	<i>Globodera rostochiensis</i>
8.	Mesenteron	H.	oocyte
9.	Hypodermis	I.	Nematocin
10.	Substance toxic to nematodes	J.	Cereal cyct nematode

D. Write 'True' or 'False'.

(10x1=10 Marks)

1.	Nematodes are called eelworm in Europe
2.	The stylet helps in clasping the female during mating
3.	N.A. Cobb developed methods and apparatus used in Nematology.
4.	The nematophagous fungi are predators of soil nematodes

5.	<i>Meloidogyne javanica</i> is pest on citrus
6.	The nematode body is basically bilaterally symmetrical.
7.	Fluid within the pseudocoelom functions to digest nutrients.
8.	Proctodaeum opens to the outside on ventral side through anus in females.
9.	Phasmids are mechanoreceptors.
10	Nematodes are dioecious or bisexual.

II. DESCRIPTIVE TYPE QUESTIONS

Total Marks: 60

Note: Attempt Any SIX Questions Only. All carries equal TEN marks.

1. Describe the full nematode extraction method from soil.
2. Describe the complete life cycle of seed gall nematode with scientific name. Draw and briefly discuss the different stages of its life cycle. State which stage of its life cycle does damage to the crop and what are the control measures?
3. Describe the morphology of nematode in general.
4. Describe the complete life cycle of root knot nematode with scientific name. Draw and briefly discuss the different stages of its life cycle. State which stage of its life cycle does damage to the crop and what are the control measures?
5. Discuss the cultural and chemical methods of nematode management in detail.
6. Describe the life cycle, plant injury, prevention and chemical control for citrus nematode.
7. Define Nematology. Discuss habitat and type of nematode in detail.
8. Discuss the reproductive system in male and female of nematode.

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NEM 601: Introductory Nematology
I. Objective Type Questions - Answer Sheet

Total Marks: 40

A.	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
	7.	
	8.	
	9.	
	10.	
B.	11.	
	12.	
	13.	
	14.	
	15.	
	16.	
	17.	
	18.	
	19.	
	20.	
C.	21.	
	22.	
	23.	
	24.	
	25.	

Student ID No.

Date:

	26.	
	27.	
	28.	
	29.	
	30.	
D.	31.	
	32.	
	33.	
	34.	
	35.	
	36.	
	37.	
	38.	
	39.	
	40.	