

**PARUL UNIVERSITY**  
**COLLEGE OF AGRICULTURE**

**B.Sc. (Hons.) Agriculture, Winter 2017 - 18 Examination**

Semester: 2

Date: 30/12/2017

Subject Code: 20107151

Time: 10:30 am to 1:00 pm

Subject Name: Introductory Nematology

Total Marks: 60

**Instructions**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1 Do as Directed.****(10)****A. Fill in the blanks.**

1. Nematicidal properties of DD mixture was discovered by \_\_\_\_\_.
2. *Xiphinemas*p. transmitted \_\_\_\_\_ disease was reported first time in plants.
3. White tip of rice was first time reported by \_\_\_\_\_ in India.
4. Citrus nematode was first time reported by \_\_\_\_\_ in India.
5. Root-knot nematodes are \_\_\_\_\_ in nature (parasitic term).
6. \_\_\_\_\_ stage of nematode is only infective.
7. \_\_\_\_\_ generations of root knot nematodes per year.
8. \_\_\_\_\_ & \_\_\_\_\_ chemicals are released under flooded conditions.
9. Nematodes having only one generation per year is known as \_\_\_\_\_.
10. Red ring nematode attacks on \_\_\_\_\_ plantings.
11. Citrus nematode is \_\_\_\_\_ in nature (parasitic term).
12. 'Clusters of sprouts on tuber' is a type of \_\_\_\_\_ symptoms.
13. DIPA act was passed by Govt.of India in year \_\_\_\_\_.
14. First plant parasitic nematode was discovered by \_\_\_\_\_.
15. First plant parasitic nematode discovered was \_\_\_\_\_.
16. Father of general Nematology \_\_\_\_\_.
17. Father of American Nematology \_\_\_\_\_.
18. Father of Nematology in India \_\_\_\_\_.
19. \_\_\_\_\_ discovered first foliar plant nematode.
20. \_\_\_\_\_ described interactive role of nematodes in producing disease complex.

**B. Multiple choice type questions.****(10)**

1. \_\_\_\_\_ discovered nematicidal properties of DD mixture.
 

a) Carter	c) Chitwood
b) Tom Goodey	d) Christie
2. \_\_\_\_\_ reported ufra disease of rice.
 

a) Dastur	c) Vasudeva
b) Butler	d) AM Khan
3. \_\_\_\_\_ reported white tip disease of rice.
 

a) Dastur	c) Vasudeva
b) Butler	d) AM Khan
4. \_\_\_\_\_ stage is only infective in nematodes.
 

a) 1 <sup>st</sup>	c) 3 <sup>rd</sup>
b) 2 <sup>nd</sup>	d) 4 <sup>th</sup>
5. Univoltine means \_\_\_\_\_ generation per year.
 

a) 1	c) 3-5
b) 1-2	d) 7-8
6. Root-knot nematodes reproduce through \_\_\_\_\_.
 

a) Sexual reproduction	c) Parthenogenesis
b) Both A & B	d) None of the above
7. Scientific name of root-knot nematode is \_\_\_\_\_.
 

a) <i>Heterodera</i> spp.	c) <i>Meloidogynes</i> spp.
b) <i>Anguin</i> spp.	d) <i>Trichodoru</i> spp.
8. Example of above ground feeding nematode is \_\_\_\_\_.
 

a) <i>Heterodera</i> spp.	c) <i>Meloidogynes</i> spp.
b) <i>Anguinatritici</i>	d) <i>Tylenchulu</i> spp.

9. Example of sedentary endoparasitic is \_\_\_\_\_.
  - a) *Heterodera*spp.
  - b) *Globodera*spp.
  - c) *Meloidogynes*spp.
  - d) All of the above
10. Use of quarantine method for nematode management comes under \_\_\_\_\_.
  - a) Regulatory method
  - b) Physical method
  - c) Cultural method
  - d) Biological control
11. First plant parasitic nematode was discovered by \_\_\_\_\_.
  - a) Atkinson
  - b) T. Needham
  - c) N A Cobb
  - d) Ritzema-Bos
12.  $\alpha$ -terthiyl and Bithiyl compounds are released by roots of \_\_\_\_\_.
  - a) Mustard
  - b) Tobacco
  - c) Marigold
  - d) Neem
13. Root-knot nematode resistant variety of tobacco is \_\_\_\_\_.
  - a) ABT-01
  - b) ABT-05
  - c) ABT-10
  - d) None of the above
14. HisarLalit is resistant variety of \_\_\_\_\_ against root knot nematodes.
  - a) Tobacco
  - b) Tomato
  - c) Potato
  - d) None of the above
15. Greek meaning of 'Nema' is \_\_\_\_\_.
  - a) Round
  - b) Thread
  - c) Worm
  - d) None of the above
16. Puncturing of cell wall of plants in nematode is function of \_\_\_\_\_.
  - a) Vulva
  - b) Haustoria
  - c) Stylet
  - d) Style
17. Among total habitat of nematodes, plant parasitic nematodes are in \_\_\_\_\_%.
  - a) 5
  - b) 10
  - c) 25
  - d) 50
18. \_\_\_\_\_ system is absent in nematodes.
  - a) Reproductive
  - b) Nervous
  - c) Circulatory
  - d) Digestive
19. First plant parasitic nematode discovered was \_\_\_\_\_.
  - a) *Tylenchulus*spp.
  - b) *Trichodoruss*spp.
  - c) *Anguinatritici*
  - d) *Meloidogyne incognita*
20. First foliar plant parasitic nematode was discovered by \_\_\_\_\_.
  - a) Atkinson
  - b) T. Needham
  - c) N A Cobb
  - d) Ritzema-Bos

**C. Give the sentence true or false.**

**(05)**

1. Nervous system is absent in nematode.
2. 2<sup>nd</sup> Juvenile stage of nematode is infective.
3. Root-knot nematodes are univoltine in nature.
4. A M Khan is known as father of Indian Nematology.
5. Atkinson discovered interaction between nematode and pathogenic fungi.
6. Nematode poses triploblastic body.
7. DIPA act was established in the year 1964.
8. Nematode is eukaryotic organisms.
9. Nematodes caused root nodules in root system of plant.
10. Digestive system is present in nematode.

**Q.2 Do as Directed.**

**A. Match group A with group B.**

**(05)**

**A**

1. Plant parasitic nematode
2. First plant parasitic nematode
3. Father of Nematology
4. Father of Indian Nematology
5. Foliar nematode
6. *Xiphinemas*spp.
7. Citrus nematode
8. Golden nematode
9. Atkinson
10. Carter

**B**

- a) H C Bastian
- b) Ritzema-Bos
- c) Siddiqui
- d) Stylet
- e) FGW Jones
- f) A M Khan
- g) Grape fan leaf virus
- h) T. Needham
- i) Carter
- j) Interaction of nematode-fungi

**B. Define the following. (Any ten) (05)**

1. Nematode
2. Nematology
3. Soil solarization
4. Ectoparasite
5. Endoparasite
6. Sedentary endoparasite
7. Antagonistic crops
8. Flooding
9. Stylet
10. Fallowing
11. Quarantine
12. Root-knotting

**C. Answer the following. (Any ten) (10)**

1. Name three reference books related to this course.
2. Explain meaning of word Nematology.
3. Define: Nematode
4. Enlist important characteristics of nematodes.
5. Give contribution of T. Needham.
6. Give examples of below ground feeding nematodes.
7. Define: Quarantine.
8. What is the important mechanism of flooding in control of nematodes?
9. Give name of grape disease which is caused due to interaction of nematode and virus.
10. Give examples of ectoparasitic nematodes.
11. Give two varieties of tomato which are resistant to root knot nematode.
12. Enlist different cultural methods used for nematode management.

**Q.3 Write short notes. (Any five) (10)**

1. Draw typical labelled diagram of nematode.
2. Give important characteristics of root knot nematodes.
3. Explain below ground symptoms caused by nematodes.
4. Give contributions of followings: N A Cobb, Atkinson, Siddiqui and Ritzema-Bos.
5. Explain: Soil solarization.
6. Explain different types of nematodes on the basis of their parasitic characters.

**Q.4 Differentiate the following. (Any five) (05)**

1. NEPO vs NETU.
2. Above ground symptoms vs Below ground symptoms
3. Root knots vs Root nodules
4. Chemical control vs Cultural control
5. Ectoparasitic nematode vs Endoparasitic nematode
6. Nematode-bacterium interaction vs Nematode-virus interaction