

ENTOMOLOGY AND NEMATOLOGY (Code-04)

1. Golden nematode was first discovered in Germany in:
(A) 1883 (B) 1903
(C) 1913 (D) 1931
2. Which of the following is not a saprophagous nematode?
(A) *Aphelenchoides* (B) *Rhabditis*
(C) *Cephalobus* (D) *Diplogaster*
3. D-D mixture is a:
(A) Contact nematicide
(B) Systemic nematicide
(C) Contact and systemic nematicide
(D) Fumigant
4. *Trichodorus* belongs to the order:
(A) Telenchida (B) Dorylaimida
(C) Chromadorea (D) Enoplea
5. Which of the following has maximum species of parasitoids?
(A) Diptera (B) Lepidoptera
(C) Hymenoptera (D) Arachnida
6. The first plant parasitic nematode which later on named as *Anguina tritici* was reported in the year:
(A) 1657 (B) 1743
(C) 1823 (D) 1853
7. Which of the following group of plant parasitic nematode exhibit most wide range of distribution?
(A) Heteroderidae (B) Meloidogynidae
(C) Platylenchidae (D) Tylenchulidae
8. When nematode populations behave differently so far as their pathogenic capacity is concerned, is called as:
(A) Ecotypes (B) Pathotypes
(C) Host races (D) Biotypes
9. Which of the following nematode has remarkable ability to survive under unfavourable conditions?
(A) *Globodera* (B) *Paratylenchus*
(C) *Trichodorus* (D) *Longidorus*
10. Molya disease of barley was first reported from:
(A) Punjab (B) Maharashtra
(C) Rajasthan (D) Utter Pradesh

11. Sexes in *Heterodera avenae* can be distinguished at which of the following larval stage?
- (A) First (B) Second
(C) Third (D) Fourth
12. Infective juvenile of entomopathogenic nematodes is
- (A) Ectoparasitic (B) Endoparasitic
(C) Obligatory parasite (D) Free living
13. *Aphelenchus avenae* is a:
- (A) Entomopathogenic nematode (B) Mycophagous nematode
(C) Saprophagous nematode (D) Carnivorous nematode
14. *Radopholus similis* belongs to the family:
- (A) Pratylenchidae (B) Criconeematidae
(C) Aphelenchoididae (D) Hoplolaimidae
15. Larvae of codling moth on apple feed on:
- (A) Leaves (B) Pulp
(C) Roots (D) Bark
16. Fensulphothion is a:
- (A) Contact and fumigant nematicide (B) Systemic nematicide
(C) Contact and non fumigant nematicide (D) Fumigant
17. In Nematodes, when the muscle cells with contractile fibres are restricted to the area of contact with hypodermis, the muscle cells are classified as:
- (A) Coelomarians (B) Platymyrians
(C) Circomyrians (D) Meromyrians
18. In cotton, which bacterium enters the site of injury caused by red cotton bug and stains the fiber:
- (A) *Serratia* (B) *Bacillus cereus*
(C) *Bacillus sphaericus* (D) *Nematospora*
19. The number of ovarioles per ovary in a termite queen may be up to:
- (A) 100 (B) 300
(C) 1000 (D) 2000
20. The first irrigation of wheat crop is done:
- (A) Soon after germination (B) At crown root initiation stage
(C) Tillering stage (D) Flowering stage
21. CAB later renamed as CABI in 1992 which stands for:
- (A) Centre for Agriculture and Biological Institute
(B) Centre for Agricultural and Biosciences Institute
(C) Centre for Agriculture and Bioscience International
(D) Commonwealth Agricultural Bureaux International

22. Six segmented abdomen is found in:
 (A) Psocoptera
 (C) Thysanura
 (B) Collembola ✓
 (D) Diplura
23. The amount of urea required to supply 50 kg of nitrogen for one hectare is:
 (A) 48 kg
 (C) 108 kg ✓
 (B) 84 kg
 (D) 148 kg
24. Which of the following is known as father of host plant resistance?
 (A) Zeidler
 (C) R.H.Painter ✓
 (B) Paul Mullar
 (D) R.F.Smith
25. Clavin cycle is:
 (A) Inhibited by light
 (C) Independent of light
 (B) Dependent upon light
 (D) Supported by light
26. Cantharidin is extracted from:
 (A) Cochineal insect
 (C) Tenebrio
 (B) Blister beetle ✓
 (D) Blowfly larvae
27. The mango mealy bug lays eggs. :
 (A) On tender parts of host
 (C) On trunk of host
 (B) In soil ✓
 (D) On fallen leaves of host
28. Melon fruit fly pupate inside the:
 (A) Fruit
 (C) Soil ✓
 (B) Leaf
 (D) Stem
29. Filter chamber is well developed in:
 (A) Fluid feeding insects ✓
 (C) Wool feeding insects
 (B) Wood feeding insects
 (D) Both wool and wood feeding insects
30. Which type of metamorphosis occurs in termites?
 (A) Ametamorphosis
 (C) Hemimetamorphosis ✓
 (B) Paurometamorphosis
 (D) Heterometamorphosis
31. In which of the following order the halteres are present?
 (A) Ephemeroptera
 (C) Plecoptera
 (B) Diptera ✓
 (D) Psocoptera
32. *Rhizopertha dominica* belongs to the family:
 (A) Tenebrionidae
 (C) Bostrichidae ✓
 (B) Dermestidae
 (D) Curculionidae
33. Buckeye rot of tomato is caused by:
 (A) *Phytophthora* sp.
 (C) *Oidium* sp.
 (B) *Colletotrichum* sp.
 (D) *Alternaria* sp. ✓

34. Indian field mouse is:

- (A) *Mus booduga*
(C) *Rattus meltda*

- (B) *Bandicota bengalensis*
(D) *Meriones hurrianae*

35. Drum culture technique is used to measure the water requirement of:

- (A) Wheat crop
(C) Rice crop

- (B) Sugarcane crop
(D) Cotton

36. Formation of soil is called as

- (A) Humification
(C) Sedimentation

- (B) Pedogenesis
(D) Withering

37. Two pairs of antennae are characteristic to the class

- (A) Onychophora
(C) Crustacea

- (B) Arachnida
(D) Myriapoda

38. The sound producing organs in cicadas are

- (A) Tympanum
(C) Tymbals

- (B) Cymbals
(D) Crochets

39. The anterior area of an insect wing having veins is known as

- (A) Jugum
(C) Remigium

- (B) Vannus
(D) Clavus

40. An example for an insecticide with fumigant action is

- (A) Endosulfan
(C) Carbaryl

- (B) Dichlorvos
(D) Monocrotophos

41. Nematode juveniles moult

- (A) 4 times
(C) 3 times

- (B) 6 times
(D) 5 times

42. Watson and Crick (1953) explained double helical structure of DNA with the help of

- (A) HPLC
(C) Thermocycler

- (B) X ray diffraction
(D) Southern blotting

43. "Nema wool" refers to the desiccated mass of

- (A) *Ditylenchus dipsaci*
(C) *Ditylenchus angustus*

- (B) *Ditylenchus destructor*
(D) *Ditylenchus phyllobia*

44. India gets maximum rainfall through

- (A) South west monsoon
(C) Summer showers

- (B) North East monsoon
(D) Pre monsoon showers

45. Blue colour tag is issued for

- (A) Breeders seed
(C) Certified seed

- (B) Nucleus seed
(D) Foundation seed

46. The cells produced at the feeding site of *Tylenchulus semipenetrans* is
 (A) Giant cells
 (C) Transfer cells
 (B) Nurse cells
 (D) Modified cells
47. Male insects produce pheromone in
 (A) *Ceratitis capitata*
 (C) *Anthonomus grandis*
 (B) *Trichoplusia ni*
 (D) *Leucinodes orbonalis*
48. Heterotrophic organism obtain energy from the biological oxidation of
 (A) Organic carbon
 (C) Ammonia
 (B) Sulphates
 (D) Carbon dioxide
49. An example for a neonicotinoid insecticide is
 (A) Spinosad
 (C) Endosulfan
 (B) Anthroquinone
 (D) Imidacloprid
50. Hidden hunger means
 (A) Deficiency symptoms with yield reduction
 (B) Severe yield reduction without deficiency symptoms
 (C) Apparent nutrient deficiency
 (D) Nutrient deficiency suppressed by other elements
51. The nematode group having amalgamated Pro and meta corpus, reduced post corpus and anchor shaped stylet knobs
 (A) Hoplolaimids
 (C) Criconematids
 (B) Trichodorids
 (D) Heteroderids
52. Which of the following orders have entomopathogenic nematodes
 (A) Tylenchida
 (C) Aphelenchida
 (B) Dorylaimida
 (D) Rhabditida
53. The infective stage of reniform nematodes is
 (A) J₁
 (C) Pre adult female
 (B) J₂
 (D) Adult male
54. The nematode pest of mushroom is
 (A) *Ditylenchus myceliophagus*
 (B) *Anguina tritici*
 (C) *Aphelenchoides besseyi*
 (D) *Ditylenchus dipsaci*
55. The springing organ in spring tails is called as
 (A) Collophore
 (C) Furca
 (B) Manubrium
 (D) Dens
56. Hamulate wing coupling mechanism occurs in
 (A) Butterflies
 (C) Moths
 (B) Dragonflies
 (D) Honey bees

57. Pedicellate eggs are laid by

- (A) Dragonflies
- (B) Damselflies
- (C) Green lace wings ✓
- (D) Caddisflies

58. Which of the following is a natural growth regulator?

- (A) NAA
- (B) Ethylene
- (C) Maleic Hydrazide
- (D) Benzaldehyde

59. The blood sugar in insects is

- (A) Arabinose
- (B) Trehalose ✓
- (C) Mannose
- (D) Glucose

60. Insecticidal property of DDT was discovered by

- (A) Paul Muller ✓
- (B) Ernst Haeckel
- (C) Luckmann
- (D) Metcalf

61. In *Apis cerana indica* combs, the drone cell is characterized by

- (A) Cell cap with a central pore
- (B) No pore in the cell cap
- (C) Cell at the bottom of the comb
- (D) Uncovered large cell

62. In Mendel's trihybrid experiment, F₂ phenotypic ratio was

- (A) 9:3:3:1
- (B) 27:9:9:9:3:3:3:1
- (C) 27:27:27:9:9:9
- (D) 9:9:9:3:3:1

63. Insects which do not flex their wings over the abdomen at rest

- (A) Neuroptera
- (B) Diptera
- (C) Hymenoptera
- (D) Ephemeroptera ✓

64. Insect pest of quarantine importance in mango

- (A) *Bactrocera dorsalis*
- (B) *Sternochaetus mangiferae* ✓
- (C) *Drosicha mangiferae*
- (D) *Procystiphora mangiferae*

65. Which of the following system is absent in nematodes?

- (A) Digestive system
- (B) Nervous system
- (C) Circulatory system ✓
- (D) Reproductive system

66. The asymmetrical structure found in nematodes is

- (A) Hypodermal chords
- (B) Excretory system ✓
- (C) Lips
- (D) Stylet knobs

67. An example of egg parasitic fungus is

- (A) *Purpureocillium*
- (B) *Fusarium*
- (C) *Cercospora*
- (D) *Verticillium*

68. An example of migratory endoparasite

- (A) *Hoplolaimus*
- (B) *Tylenchorhynchus*
- (C) *Radopholus* ✓
- (D) *Aphelenchus*

69. The first five year plan was launched in
(A) 1947
(C) 1950
(B) 1951
(D) 1955
70. Which country is the largest importer of Basmati rice from India
(A) USA
(C) Iran
(B) Russia
(D) Iraq
71. The nematode used as a model for biological experiments is
(A) *Caenorhabditis elegans*
(B) *Caenorhabditis briggsae*
(C) *Heterorhabditis indica*
(D) *Steinernema glasseri*
72. Which of the following is a predatory nematode?
(A) *Mononchus*
(C) *Longidorus*
(B) *Xiphinema*
(D) *Trichodorus*
73. Parthenocarpy occurs in
(A) Jackfruit
(C) Mango
(B) Peach
(D) Banana
74. The change of ADP to ATP is called as
(A) Photosynthesis
(C) Phosphorylation
(B) Transpiration
(D) Oxidation
75. "Prolegs" in case of looper larva found in which body segments
(A) 3rd, 4th and 10th
(B) 6th and 10th
(C) 3rd and 10th
(D) only 10
76. Newton hive is best suited for which type of honey bee species
(A) *Apis mellifera*
(C) *Apis cerana*
(B) *Apis florea*
(D) *Apis dorsata*
77. Importance of bee space was discovered by
(A) Rev. Newton
(C) Haydak
(B) Langstroth
(D) Mellitan
78. Major part of the honey is
(A) Glucose
(C) Minerals
(B) Fructose
(D) Vitamins
79. Luminous insects are generally seen in the order
(A) Coleoptera
(C) Hymenoptera
(B) Diptera
(D) Orthoptera

80. Strongest insect wing vein
(A) Costa (B) Sub-costa ✓
(C) Median (D) Radius
81. *Meloidogyne* sp. can enter the host in wet soil through
(A) Hydathodes (B) Stomata
(C) Lenticles (D) Nectaries
82. Vulval cone is a specific characteristic of which nematode
(A) *Pratylenchus* sp. ✓
(C) *Anguina* sp. ✗ (B) *Heterodera* sp.
(D) *Ditylenchus* sp.
83. Hot water treatment is the effective method for the control of
(A) *Pratylenchus coffeae* (B) *Globodera rostochiensis* ✓
(C) *Hirschmanniella oryzae* (D) *Aphelenchoides besseyi*
84. Lance nematode is
(A) *Trichodorus* Sp. (B) *Hoplolaimus* Sp. ✓
(C) *Longidorus* Sp. (D) *Xiphinema* Sp.
85. Stylet-knobs are tulip shaped in
(A) *Hoplolaimus* ✓ (B) *Trichodorus*
(C) *Xiphinema* (D) *Meloidogyne*
86. The pigment responsible for red colour on ripening in tomato
(A) Quercetin (B) Lycopene ✓
(C) Sinigrin (D) Capsanthin
87. The type of forewing in Coleoptera
(A) Hemelytra (B) Scaly
(C) Membranous (D) Elytra ✓
88. The type of mouth parts in Honey bee
(A) Chewing & Lapping ✓ (B) Sponging & Sucking
(C) Siphoning (D) Piercing & Sucking
89. The time period between two insect moults
(A) Instar (B) Stage
(C) Stadium ✓ (D) Imago
90. Rhinoceros grub is of the type
(A) Apodous (B) Polypodous ✓
(C) Campodiform (D) Sacrabaeiform
91. A monophagous pest of paddy
(A) *Scirpophaga incertulas* ✓ (B) *Orseolia oryzae*
(C) *Nilaparvata lugens* (D) *Leptocorisa oratorius*

92. Respiratory organ of scorpion is
(A) Cutaneous
(C) Booklungs
(B) Gill
(D) Tracheal
93. Kalahasti malady of groundnut is caused by
(A) *Tylenchorhynchus brevilineatus*
(B) *Heterodera rostochinensis*
(C) *Radopholus similis*
(D) *Xiphinema index*
94. Propagative material of pine apple
(A) Slips
(C) Setts
(B) Seed
(D) Root suckers
95. The whiptail physiological disorder in cauliflower is caused due to deficiency of
(A) Molybdenum
(C) Calcium
(B) Boron
(D) Copper
96. The word 'Agriculture' was derived from the language
(A) Greek
(C) English
(B) Latin
(D) Spanish
97. The infective stage of stem and bulb nematode, *Ditylenchus sp.*
(A) J1
(C) J3
(B) J2
(D) J4
98. The end product of glycolysis
(A) Ascorbic acid
(C) Oxaloacetic acid
(B) Pyruvic acid
(D) Glutamic acid
99. ATARI stands for
(A) Advanced Technology and Research Institute
(B) Agricultural Technology Application Research Institute
(C) Advanced Technology and Agricultural Research Institute
(D) Agricultural Technology Advanced Research Institute
100. The Lepidopteran larvae are generally known as
(A) Caterpillars
(C) Maggots
(B) Grubs
(D) Naiads
101. Based on mode of action, arsenical insecticides are regarded as
(A) Respiratory poisons
(C) Protoplasmic poisons
(B) Physical poisons
(D) Nerve poisons
102. Moulting hormone is secreted by
(A) Corpora allata
(C) Pro thoracic glands
(B) Corpora cardiaca
(D) Neuro secretory cells

103. Wax glands are present in the following caste of honey bees
(A) Queen
(B) Workers ✓
(C) Drones
(D) Workers and Drones
104. Square shaped bluish black beetle with spines on elytra
(A) *Dicladispa armigera* ✓
(B) *Epilachna dodicastigma*
(C) *Aulacophora cincta*
(D) *Longitarsus belgaumensis*
105. Potato tuber moth was introduced into india in 1937 from
(A) Srilanka
(B) China
(C) West Indies
(D) Italy ✓
106. Domestic quarantine exists in India against
(A) Rice white tip nematode
(B) Root knot nematode ✓
(C) Citrus burrowing nematode
(D) Potato cyst nematode
107. Which principle of management is involved in Rabbing?
(A) Cultural ✓
(B) Physical
(C) Biological
(D) Chemical
108. Acid fuchsin is used for
(A) Staining egg masses of nematodes
(B) Separation of eggs from egg mases
(C) Staining nematodes in plant tissues
(D) Inactivation of nematodes
109. Application of high dose of nitrogenous fertilizer increase the incidence of in sugarcane.
(A) Root borer
(B) Shoot borer
(C) Pyrilla ✓
(D) White flies ✗
110. Reproduction in plant parasitic nematode is generally
(A) Sexual
(B) Parthenogenic ✓
(C) Syngonic
(D) Hermaphrodite
111. Pest management practices are applied at
(A) ETL ✓
(B) GEP
(C) Damage boundary
(D) EIL
112. Which of the following is commonly called as Stubby root nematode?
(A) *Tylenchorhynchus*
(B) *Hoplolaimus*
(C) *Tylenchus*
(D) *Trichodorus* ✓
113. Which type of legs are observed in mole cricket?
(A) Fossorial ✓
(B) Clasping
(C) Natatorial
(D) Clinging

114. Release of larval parasitoid, *Cotesia plutellae* helps in reduction of damage of
(A) Leaf webber
(C) Fruit borer
(B) Diamond back moth
(D) Semi looper
115. Most of the insects are attracted to
(A) Red light
(C) Blue light
(B) Green light
(D) Yellow light
116. Which is the most serious pest of onion and garlic?
(A) Thrips
(C) Scale
(B) Mite
(D) Bulb borer
117. An insecticide having low LC_{50} value is considered as
(A) More toxic
(C) Non toxic
(B) Less toxic
(D) Moderately toxic
118. Which of the following is an acaricide?
(A) Dicofol
(C) Monocrotophos
(B) Dimethoate
(D) BHC
119. Which of the following insecticide belongs to organophosphate group?
(A) Monocrotophos
(C) Endosulfan
(B) Carbaryl
(D) Kelthane
120. Which of the following is an anti-coagulant for rats?
(A) Zinc phosphide
(C) Strychnine hydrochloride
(B) Aluminium phosphide
(D) Warfarin
121. Nematodes always bend
(A) Dorsally
(C) Ventrally
(B) Laterally
(D) Dorso-laterally
122. Which nematodes produces symptoms on above ground part of the plant?
(A) *Anguina* sp.
(C) *Xiphinema* sp.
(B) *Rotylenchus* sp.
(D) *Hoplolaimus* sp.
123. The toxic insecticide(s) banned in India
(A) Aldrin and BHC.
(C) Methyl parathion.
(B) DDT
(D) Carbofuran
124. Pine apple is a
(A) C3 plant
(C) CAM plant
(B) C4 plant
(D) Variable
125. A biorational pesticide is
(A) Aldrin
(C) Endosulfan
(B) BHC
(D) Diflobenzuron

126. Double seed condition is common in

- (A) Pink bollworm in cotton
- (B) American bollworm in cotton
- (C) Seed borer in maize
- (D) Sorghum shoot fly

127. Which sampling strategy is best suited for insects that live in the soil?

- (A) Sex pheromone trap
- (B) Sweeping
- (C) Berlese funnel
- (D) Light trap

128. Which structure is unicellular?

- (A) Spine
- (B) Gland
- (C) Seta
- (D) Pile

129. If the acute dermal median lethal dose (LD_{50}) of an insect is 50 mg/kg, then

- (A) 50 test-insects can be killed with 50 mg of the toxin
- (B) One test-insect can be killed with 50 mg of the toxin
- (C) 50% of the test-insects can be killed with 50 mg of the toxin
- (D) 50% of the test-insects will be killed in 50 minutes by 50 mg of the toxin

130. Father of Microbiology & Immunology is/was

- (A) Louis Pasteur
- (B) Antony van Leeuwenhoek
- (C) Joseph Lister
- (D) Rober Koch

131. India has been divided into how many Agro-climatic Zones.

- (A) 12
- (B) 15
- (C) 20
- (D) 24

132. Bunchy top of banana is transmitted by

- (A) *Pentalonia nigronervosa*
- (B) *Aphis craccivora*
- (C) *Nephotettix vires*
- (D) *Anguina tritici*

133. A line drawn on a map connecting points with equal rainfall is

- (A) Isohyet
- (B) Isotherm
- (C) Isobar
- (D) Isotope

134. The following nematicide liberates methyl isothiocyanate

- (A) Oxamyl
- (B) Aldicarb
- (C) Dazomet
- (D) Ethoprop

135. Metham sodium belongs to this group of nematicides

- (A) Organo phosphate
- (B) Oxime carbamate
- (C) Halogenated hydrocarbon
- (D) None of these

136. Size of a Granule (G) formulation is expressed as 16/30. The meaning is:
- (A) 16 stands for the sieve with mesh no. 16, through which most (90%) of the particles can pass, 30 stands for smaller holes on which most of the material (90%) retained.
 - (B) 30 stands for the sieve with mesh no. 30 through which most (90%) of the particles can pass, and 16 stands for smaller holes on which most of the material (90%) retained.
 - (C) 16 and 30 stands for the sieve with respective mesh numbers through which most (90%) of the particles can pass through.
 - (D) 16 and 30 stands for the sieve with respective mesh numbers through which most (90%) of the particles cannot pass through.

137. Proturan insects are characterized by

- (A) They have eyes and antennae.
- (B) Have raptorial type of mouth parts.
- (C) Feed on decomposing organic matter.
- (D) Predate on mealy bugs.

138. An experimental lay out is designed with 4 treatments (=t) and 4 replications (=r) in RBD. You have to rectify this to make it statistically valid by (select the best answer):

- (A) Increasing 'r' only by one.
- (B) Increasing 't' only by one.
- (C) Decreasing either 'r' or 't'.
- (D) Increasing either 'r' or 't'.

139. One can well advocate a biopesticide Bt (*Bacillus thuringiensis*) spray for the crop pest

- (A) Brinjal fruit & shoot borer.
- (B) Rice Gall midge.
- (C) Pink boll worm.
- (D) American boll worm.

140. Rice Grasshopper (*Hieroglyphus nigroreplectus*) undergoes diapause in which stage:

- (A) Egg.
- (B) Nymph.
- (C) Solitary stage.
- (D) Adult.

141. Queen termite is characterized with

- (A) Physogastry.
- (B) Trophallaxis.
- (C) Swarming.
- (D) Grooming larvae.

142. The meaning of label claim with regard to Insecticides Act 1968 is:

- (A) Any written, printed or graphic matter on the immediate package and on every other covering in which the package is placed or packed and includes any written, printed or graphics matter accompanying the insecticides.
- (B) The active ingredient present in the insecticide formulation offered for marketing.
- (C) Both the active ingredient and inert material present in the insecticide formulation offered for marketing.
- (D) The precautionary statements and antidotes written, printed or such related graphic material on the insecticide formulation offered for marketing.

143. Under Insecticide Resistance Management (IRM), the insect-resistance combating measures do not include

- (A) Crop-refugia
- (B) High toxin dose
- (C) Gene pyramiding
- (D) Application of broad spectrum insecticide

144. Which order is CORRECTLY associated with its wing type?

- (A) Scaly wings – Trichoptera
- (B) Fringed wings – Neuroptera
- (C) Hemelytra – Coleoptera
- (D) Tegmen – Orthoptera

145. Which insects NEVER develop wings?

- (A) Earwigs
- (B) Booklice
- (C) Aphids
- (D) Fleas

146. Which hormone would NOT be found in adult insects?

- (A) Brain hormone (PTTH)
- (B) Juvenile hormone
- (C) Eclosion hormone
- (D) Epidiabetic hormone

147. A nerve cell that conducts information towards central nervous system is called

- (A) Motor neuron
- (B) Afferent neuron
- (C) Association neuron
- (D) Efferent neuron

148. The latest insect pest seen as an emerging pest in agriculture is

- (A) *Liriomyza trifolii*
- (B) *Parthenium*
- (C) *Phenacoccus solenopsis*
- (D) *Tuta absoluta*

149. Silk gland in silkworm is a modification of

- (A) Salivary gland
- (B) Mandibular gland
- (C) Maxillary gland
- (D) Pharyngeal gland

150. The female root knot nematode is characterized by

- (A) Monodelphic, prodelphic ovary and terminal vulva
- (B) Didelphic, prodelphic ovaries and median vulva
- (C) Didelphic, amphidelphic ovaries and median vulva
- (D) Didelphic, prodelphic ovaries and terminal vulva

DIRECTIONS: (Question No. 151 to 160) Cross matching type questions. Each sub-question carries ONE mark. Choose the correct answer (A, B, C, D and E) for each sub-question (i, ii, iii, iv and v) and enter your choice in the circle (by shading with Black/Blue Ball Point Pen) on the OMR- Answer Sheet. For each wrong answer 0.20 marks will be deducted.

151. Match the following:

- | | |
|----------------------|-----------------|
| (i) Scarabaeidae | (A) Collembola |
| (ii) Leaf miner | (B) Maxilla |
| (iii) Fossorial legs | (C) Gryllotalpa |
| (iv) Springtail | (D) Dung beetle |
| (v) Cardio | (E) Agromyzidae |

DECA B

152. Match the following:

- | | |
|-----------------------------------|---------------------|
| (i) Bipectinate antenna | (A) Natatorial legs |
| (ii) Water beetles | (B) Heart |
| (iii) Uptake of water from rectum | (C) Silkworm |
| (iv) Polyphaga | (D) Cryptonehridia |
| (v) Alary muscles | (E) Coleoptera |

DECA D E B

153. Match the following:

- | Insect | Family |
|------------------------|-------------------|
| (i) Leaf hopper | (A) Muscidae |
| (ii) House flies | (B) Arctiidae |
| (iii) Lady bird beetle | (C) Cicadellidae |
| (iv) Green lacewings | (D) Coccinellidae |
| (v) Tiger moths | (E) Chrysopidae |

CADER

154. Match the following:

- | Nematode | Host |
|--|----------------|
| (i) <i>Globodera rostochiensis</i> | (A) Pigeon pea |
| (ii) <i>Radopholus similis</i> | (B) Wheat |
| (iii) <i>Tylenchulus semipenetrans</i> | (C) Potato |
| (iv) <i>Anguina tritici</i> | (D) Banana |
| (v) <i>Heterodera cajani</i> | (E) Citrus |

CDEBA

155. Match the following:

- | Common Name | Scientific Name |
|-----------------------|----------------------------|
| (i) Lance nematode | (A) <i>Tylenchorynchus</i> |
| (ii) Stunt nematode | (B) <i>Criconeema</i> |
| (iii) Dagger nematode | (C) <i>Helicotylenchus</i> |
| (iv) Ring nematode | (D) <i>Hoplolaimus</i> |
| (v) Spiral nematode | (E) <i>Xiphinema</i> |

DAEBC

156. Match the following:

- | | |
|---------------------------------|-----------------------------|
| (i) Mucro | (A) <i>Pratylenchus</i> |
| (ii) Z-organ | (B) <i>Xiphinema</i> |
| (iii) Spike tailed stages | (C) <i>Hirschmaniella</i> |
| (iv) Post uterine sac | (D) <i>Tylenchorhynchus</i> |
| (v) Abutting type of oesophagus | (E) <i>Meloidogyne</i> |

157. Match the following:

- | | |
|------------------|------------------|
| (i) Cuticle | (A) Arthropodin |
| (ii) Epidermis | (B) Pore canal |
| (iii) Epicuticle | (C) Cellular |
| (iv) Exocuticle | (D) Non cellular |
| (v) Endocuticle | (E) No chitin |

D C E B A

158. Match the following:

- | | |
|--------------------------------|--------------------------|
| (i) <i>Ditylenchus</i> | (A) Coconut |
| (ii) <i>Dolichodous</i> | (B) Stem & Bulb nematode |
| (iii) <i>Tylenchorhynchus</i> | (C) Awl nematode |
| (iv) <i>Radopholus similis</i> | (D) Needle nematode |
| (v) <i>Longidorus</i> | (E) Stunt nematode |

B C E A D

159. Match the following:

- | | |
|-----------------------|--------------------|
| (i) Old worker bee | (A) Scent gland |
| (ii) Young worker bee | (B) Indoor work |
| (iii) Worker bee | (C) Outdoor work |
| (iv) Drone bee | (D) Sterile female |
| (v) Resource marking | (E) Fertile male |

B C D E A

160. Match the following:

- | Pests | Cultural methods of control |
|----------------------------------|-----------------------------|
| (i) Red hairy caterpillar | (A) Trash mulching |
| (ii) Locust | (B) Shaking plants |
| (iii) BPH | (C) Bon fires |
| (iv) Gram caterpillar | (D) Alley ways |
| (v) Sugar cane early shoot borer | (E) Flame throwers |

C E D B A

Entomology JRF key

(1) C	(29) A	(58) A	(87) d	(117) A	(146) B
(2) A	(30) C	(59) B	(88) A	(118) A	(147) B
(3) D	(31) B	(60) A	(89) C	(119) A	(148) D
(4) B	(32) C	(61) A	(90) D	(120) D	(149) A
(5) C	(33) A	(62) B	(91) A	(121) D	(150) D
(6) B	(34) A	(63) D	(92) C	(122) A	
(7) B	(35) C	(64) B	(93) A	(123) A	
(8) B	(36) B	(65) C	(94) A/D	(124) C	
(9) A	(37) C	(66) B	(95) A	(125) D	
(10) C	(38) C	(67) D	(96) BB	(126) A	
(11) C	(39) C	(68) C	(97) D	(127) C	
(12) D	(40) B	(69) B	(98) B	(128) C	
(13) B	(41) A	(70) C	(99) B	(129) C	
(14) A	(42) B	(71) A	(100) A	(130) B	
(15) B	(43) A	(72) A	(101) C	(131) B	
(16) C	(44) A	(73) A	(102) C	(132) A	
(17) B	(45) C	(74) D	(103) B	(133) A	
(18) D	(46) B	(75) B	(104) A	(134) C	
(19) D	(47) C	(76) A	(105) D	(135) C	
(20) B	(48) A	(77) B	(106) D	(136)	
(21) C	(49) D	(78) B	(107) A	(137) C	
(22) B	(50) B	(79) A	(108) A	(138) B	
(23) C	(51) C	(80) D	(109) C	(139) D	
(24) C	(52) D	(81)	(110) D	(140) A	
(25) C	(53) C	(82) B	(111) A	(141) A	
(26) B	(54) A	(83) D	(112) D	(142) A	
(27) B	(55) C	(84) B	(113) A	(143) B	
(28) C	(56) D	(85) A	(114) B	(144) D	
	(57) C	(86) B	(115) D	(145) B	
			(116) A		