

M.Sc. (Agriculture) – I
ENTOMOLOGY

General Instructions for Students

Name of Candidate _____

Roll No. _____

1. Every candidate should carry his/her valid Roll No. cum Admit Card to the Entrance Test. No candidate without the valid Roll No. cum Admit Card will be allowed to enter the Examination Centre.
2. Please fill in all particulars properly and legibly.
3. The paper will be of Two Hour duration.
4. The question paper will comprise of three parts. Part A will comprise of Twenty five Multiple Choice Type questions of General Agriculture of One mark each. Part B will be of Fifty Multiple Choice Question of Elective of One mark each.
5. Part C will be of Subjective Type Questions.
6. The candidate has to fill in the right option against the question number in the OMR sheet with BLUE/BLACK pen.
7. There will be no negative marking.
8. The OMR and Answer Sheet must be handed over to the Room Supervisor even if candidate has not written anything.
9. No candidate will be allowed to leave the examination hall before Two hours.
10. Do not write/make any identification marks(s)/religious symbols/slogan(s) on the OMR/Answer Sheet.
11. The candidate must ensure that his OMR and Answer Sheet have been duly stamped.
12. Please ensure that you have signed the attendance sheet for the day.
13. Mobile Phones and other electronic gadgets such as Bluetooth etc. are strictly prohibited in the Examination Centre.

Time: Two Hours

Max Marks: 100

Multiple Choice Questions

PART-A

General Agriculture (Common for all)

1. Hormones used for inducing lactation in sterile cows is
(A) Relaxin (B) Estrogen (C) Progesterone (D) Stilbestrol
2. Florigen is produced in the region of
(A) Leaves (B) Fruits (C) Roots (D) Trunk
3. Sustainable agriculture can be achieved by:
(A) More resources (B) More Subsidies
(C) More technological support (D) Better prices of the produce
4. The all round development of Indian rural people can be achieved by means of
(A) Extension education (B) Adult extension
(C) More money distribution (D) All of the above
5. In extension education communication is a
(A) Process (B) Method (C) Idea (D) Expression of thoughts
6. Black heart of potato is caused by:
(A) Bacteria (B) Fungi (C) Poor Ventilation in Storage (D) Algae
7. Solar energy treatment of wheat seed is recommended for the control of
(A) Loose smut (B) Karnal bunt (C) Hill bunt (D) Black rust
8. Ranikhet disease of fowl is spread through
(A) Bacteria (B) Fungi (C) MLO's (D) Virus
9. Self incompatibility promotes:
(A) Autogomy (B) Allogomy (C) Homogeny (D) None
10. Termite, one of the most damaging pest of wheat belong to order
(A) Neuroptera (B) Thysanoptera (C) Isoptera (D) Diptera
11. Insecta is featured with
(A) Body divided into three segments (B) Have three pairs of legs
(C) Pair of Antenna (D) All the above
12. Insecticide act was passed in
(A) 1986 (B) 1968 (C) 1972 (D) 1962
13. Insect feeding on plant of several Genera within a family are called as
(A) Phytophagus (B) Polyphagus (C) Oligophagus (D) Monophagus
14. Which bee called as "Rock bee or Giant bee"
(A) Apis Mellifera (B) Apis dorsata (C) Apis Indica (D) Apis Florea
15. Total geographical area of India
(A) 320 Mha (B) 329 Mha (C) 339 Mha (D) 359 Mha
16. Cropping Intensity of India
(A) 126% (B) 130% (C) 136% (D) 142%

17. A certain part of energy received from the sun, is reflected back to space by the earth known as
 (A) Diffused (B) Transitional (C) Albedo (D) El. Nino
18. The science which deals with study of Rocks known as
 (A) Pedology (B) Geology (C) Meteorology (D) None of these
19. is the value of next best alternative foregone
 (A) Minimum cost (B) Opportunity cost (C) Isoquant (D) Marginal cost
20. The middle value of an ordered array of numbers is the
 (A) Mode (B) Mean (C) Median (D) Midpoint
21. Write seed rate of Barseam in kg per hectare
 (A) 10 kg (B) 15 kg (C) 20 kg (D) 25 kg
22. Instrument measure solar radiations
 (A) Pyreno meter (B) Lux meter (C) Albedometer (D) All of these
23. Spacing of Rice during transplanting is
 (A) 15 x 15cm (B) 20 x 20 cm (C) 15 x 20 cm (D) 10 x 15 cm
24. New variety of Barseam is
 (A) BL12 (B) BL 22 (C) BL32 (D) BL42
25. Choose the mismatch among the following
 (A) Conservation tillage Erosion control
 (B) Luxury consumptive by plants Potassium
 (C) Ammonium Sulphate Basic fertilizer
 (D) Gibberellins Poly cyclic terpenoids

PART-B

Elective (Entomology))

26. Who is considered as "Father of Modern Nematology?"
 (A) N.A. Cobb (B) E.J. Butler (C) C.A. Barber (D) M.J. Berkeley
27. Bipectinate antenna is typically found in the-
 (A) Culex mosquito (B) House fly (C) Cockroach (D) Silkmoth
28. Pest is derived from a word "Pestes" which is
 (A) Arabic (B) Latin (C) French (D) Greek
29. _____ stage is the part of development of terrestrial exopterygota insects-
 (A) Larvae (B) Nymph (C) Naiad (D) Foetus
30. Relative estimate of population is done by
 (A) Catch per unit time (B) Use of traps (C) Both A & B (D) None of the above
31. 'Hopperburn' in rice fields is caused by
 (A) Brown planthopper (C) Whitebacked planthopper
 (B) Rice grasshoppers (D) Green leafhoppers
32. Basic unit of chitin is-
 (A) N-acetyl-D-glucosamine (C) D-acetyl-N-glucosamine
 (B) N-butyl-D-glucosamine (D) N-acetyl-D-galactosamine

33. The vector of dengue belongs to order-
 (A) Isoptera (B) Hemiptera (C) Siphonaptera (D) Diptera
34. Central Anti-locust organization has headquarter at-
 (A) Jodhpur (B) Faridabad (C) Palanpur (D) Ranchi
35. Major producer of Lac in world is-
 (A) Thailand (B) Myanmar (C) India (D) Bhutan
36. *Cnaphalocrocis medinalis* is known as-
 (A) Rice leaf-folder (C) Castor semilooper
 (B) Asian maize borer (D) Rice gall midge
37. Scientific name of citrus nematode is
 (A) *Helicotylenchus citri* (C) *Tylenchulus semipenetians*
 (B) *Rotylenchulus reniformis* (D) *Hoplolaimus indica*
38. Methyl eugenol used for the lure of
 (A) Melon fruit fly (B) Oriental fruit fly (C) Onion fly (D) Mediterean fruit fly
39. Ufra disease of Rice is caused by
 (A) *Ditylenchus angustus* (B) *Anguina tritici*
 (C) *Aphelenchoides besseyi* (D) *Hirschmanniella oryzae*
40. Tundu disease of wheat is caused by
 (A) *Corynebacterium ratharyi* (B) *Anguina tritici*
 (C) Both A & B (D) None of them
41. Which one is not a internal feeder
 (A) Grain weevil (B) Red flour beetle (C) Khapra beetle (D) Pulse beetle
42. Absconding occurs due to-
 (A) Lack of food and water (B) Constant pest attack
 (C) Unfavourable environment (D) All of the above
43. Pinning in bugs are done through-
 (A) Thorax (B) Abdomen (C) Scutellum (D) Elytron
44. Controlling the insect pest by changing their environment (Abiotic factors) is called as-
 (A) Mechanical Control (B) Physical control (C) Cultural control (D) Biorational control
45. Halteres are present in-
 (A) Diptera (B) Coleoptera (C) Siphonaptera (D) Hemiptera
46. Molya disease of wheat caused by
 (A) *Tylenchulus semipenetians* (B) *Heterodera avenae*
 (C) *Meloidogyne gavanice* (D) *Anguina tritici*
47. DD-136 used in biological control is-
 (A) Fungi (B) Virus (C) Rickettsiae (D) Nematode
48. Female Sex pheromone of pink bollworm is-
 (A) Gyplure (B) Gossyplure (C) Looplure (D) Helilure
49. E.F. Knipling and R.C. Bushland was awarded 1992 World Food Prize for developing
 (A) Hormonal control of insect (B) Allelochemicals
 (C) Incompatible insect technique (D) Sterile insect technique

50. Type of parasitism where more individuals of the same species are present in a single host is called as-
- (A) Superparasitism (B) Hyperparasitism
(C) Multiple Parasitism (D) Oligoparasitism
51. Aflatoxin, a toxic substance is produced by
- (A) *Metarrhizium anisopliae* (B) *Aspergillus flavus*
(C) *Anisoplia austriaca* (D) *Nomuraea rileyi*
52. A farmer bought an insecticide with 'Danger' written on it describing its poisonous qualities. It means the insecticide is
- (A) Extremely toxic (B) Moderately toxic (C) Highly toxic (D) Less toxic
53. Strike the odd one out of the following factors influencing pest population-
- (A) Food (B) Parasites (C) Temperature (D) Predators
54. *Icerya purchasi* is an example of
- (A) Minor pest (B) Sporadic pest (C) Potential pest (D) Invasive pest
55. In paniostic type of ovarioles
- (A) Nutritive cells are crowded at the base of each ovarioles
(B) Nutritive cells are crowded at the apex of each ovarioles
(C) Nutritive cells are present and alternate with oocytes
(D) Nutritive cells are absent in ovarioles
56. Apneustic condition is related to
- (A) Spiracles (B) Integument (C) Gills (D) Haemocoel
57. A typical head (Grasshopper) consists of _____ segments
- (A) 5 (B) 6 (C) 7 (D) 4
58. Genus of Dagger nematode is
- (A) Xiphinema (B) Tylenchulus (C) Hoplolaimera (D) Trichodorus
59. First Plant Protection Advisor (PPA) to GOI appointed was
- (A) SSL Pradhan (B) MA Husain (C) TVR Ayyar (D) HS Pruthi
60. *Entomologia Systematica* was authored by
- (A) J.C. Fabricius (B) Carl Linnaeus (C) Edward Donovan (D) J.O. Westwood
61. Which layer is formed first during formation of cuticle
- (A) Exo-cuticle (B) Endo-cuticle (C) Epi-cuticle (D) Pro-cuticle
62. Fipronil. A novel insecticide belongs to-
- (A) Nicotinyl (B) Phenyl pyrazole (C) Pyrrole (D) Avermectins
63. Size of droplets (in micrometer) for Mist spray falls in
- (A) 100-200 (B) 200-400 (C) 1-50 (D) 50-100
64. Biological control includes the technique
- (A) Introduction of natural enemy (B) Conservation of natural enemy
(C) Augmentative releases of natural enemy (D) All of the above
65. Johnston's organ act as a
- (A) Mechanoreceptors (B) Photoreceptors
(C) Chemoreceptors (D) Thermoreceptors

66. Which system is absent in nematodes-
 (A) Respiratory (B) Nervous (C) Reproductive (D) Digestive
67. *Plodia interpunctella* is scientific name of-
 (A) Rice moth (B) Indian meal moth
 (C) Angoumois grain moth (D) Almond moth
68. *Amritodus atkinsoni* is an important pest of
 (A) Citrus (B) Guava (C) Apple (D) Mango
69. *Phthorimea operculella* is a destructive pest of-
 (A) Potato (B) Cabbage (C) Onion (D) Peas
70. European foulbrood in Honey bees is caused by
 (A) *Melissococcus* spp. (B) *Acarapis* spp.
 (C) *Aspergillus* spp. (D) *Ascophaera* spp.
71. A compound released by one organism which evokes response in a another receiver species which is favourable to emitter is called
 (A) Kairomone (B) Allomone (C) Antimone (D) Synomone
72. Head louse legs are modified into
 (A) Raptorial type (B) Cursorial type (C) Fossorial type (D) Scansorial type
73. 'r-strategists' pest is one with-
 (A) High survival rate and low reproductive rate (B) Low survival and high reproductive rate
 (C) Low survival rate (D) High reproductive rate
74. Apholate is a typical example of
 (A) Juvenile Hormone (B) Chemosterilant (C) Avermectins (D) CSI
75. *Trichogramma* spp. is a
 (A) Egg parasite (B) Larval Parasite (C) Adult Parasite (D) All of the above

PART C

Subjective Type Questions

Note : Attempt all questions. Each question carries FIVE marks.

1. Discuss the role of different hormones involved in metamorphosis of an insect.
2. What do you know about IPM. Discuss its components.
3. Describe the general structure of insect integument.
4. Enlist (with scientific name and classification) any two lepidopteran and two hemipteran pests of rice giving its damage symptoms and control methods.
5. Describe the sensory system in insect. Draw the diagram of compound eye.