

Roll No. ....

Question Booklet Number

O. M. R. Serial No.

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**M. Sc. (Ag.) Agricultural Entomology**  
**(First Semester) EXAMINATION, 2021-22**  
**INSECT ANATOMY, PHYSIOLOGY AND NUTRITION**

**Paper Code**

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Questions Booklet  
Series

**A**

*Time : 1:30 Hours ]*

*[ Maximum Marks : 100*

**Instructions to the Examinee :**

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 60 questions. Examinee is required to answer any 50 questions in the OMR Answer-Sheet provided and not in the question booklet. If more than 50 questions are attempted by student, then the first attempted 50 questions will be considered for evaluation. All questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

**परीक्षार्थियों के लिए निर्देश :**

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 60 प्रश्न हैं। परीक्षार्थी को किन्हीं 50 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। यदि छात्र द्वारा 50 से अधिक प्रश्नों को हल किया जाता है तो प्रारम्भिक हल किये हुए 50 उत्तरों को ही मूल्यांकन हेतु सम्मिलित किया जाएगा। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

**(Remaining instructions on the last page)**

**(शेष निर्देश अन्तिम पृष्ठ पर)**

***(Only for Rough Work)***

1. The first book on insect physiology was published by :  
 (A) Paul Marchal, 1911  
 (B) V. B. Wigglishworth, 1939  
 (C) A. D. Imms, 1951  
 (D) None of the above
2. Major constituents of the Chitin are :  
 (A) Lipids  
 (B) Amino acids  
 (C) Nitrogenous Polysaccharides  
 (D) All of the above
3. The process of shedding the cuticle is called :  
 (A) Ecdysis  
 (B) Diapause  
 (C) Hibernation  
 (D) None of the above
4. In phytophagous insects alimentary canal is ..... than that in carnivorous.  
 (A) Smaller  
 (B) Equal  
 (C) Longer  
 (D) None of the above
5. The wall of midgut is composed of ..... layers.  
 (A) Three  
 (B) Five  
 (C) Two  
 (D) Six
6. Ecdysone hormone is secreted from :  
 (A) Carpus cardiacum  
 (B) Carpus allatum  
 (C) Prothoracic gland  
 (D) Brain
7. Gyptol is a :  
 (A) Neurohormone  
 (B) Juvenile hormone  
 (C) Moulting hormone  
 (D) Sex hormone
8. Coractate type of Pupa is found in :  
 (A) Butterfly  
 (B) Wasp  
 (C) Housefly  
 (D) Beetles

9. Fat bodies of the insects are the part of :
- (A) Digestive system
  - (B) Respiratory system
  - (C) Reproductive system
  - (D) Excretory system
10. Vitellogenesis refers to :
- (A) Egg maturation
  - (B) Sperm maturation
  - (C) Brain hormone
  - (D) Diuratic hormone
11. Malpighian tubules are absent in :
- (A) Coleoptera
  - (B) Collembola
  - (C) Both (A) and (B)
  - (D) None of the above
12. Reproduction by immature forms before attaining the adult stage is called :
- (A) Paedogenesis
  - (B) Oogenesis
  - (C) Viviparity
  - (D) None of the above
13. Proventriculus is present in :
- (A) Hemiptera
  - (B) Diptera
  - (C) Orthoptera
  - (D) Thysanoptera
14. Cryptonephridial system is present in order :
- (A) Hymenoptera
  - (B) Isoptera
  - (C) Lepidoptera
  - (D) Coleoptera
15. Paper factor is related to :
- (A) Neurohormone
  - (B) Juvenile hormone
  - (C) Sex hormone
  - (D) All of the above
16. The crop is a part of which system ?
- (A) Circulatory
  - (B) Excretory
  - (C) Digestive
  - (D) Respiratory

17. How do most insects respire ?
- (A) Through skin
  - (B) Through gills
  - (C) Through lungs
  - (D) Through tracheal system
18. All pairs of spiracles are closed and non-functional. This type of system is known as :
- (A) Apneustic tracheal system
  - (B) Hypopneustic tracheal system
  - (C) Hyperpneustic tracheal system
  - (D) All of the above
19. Fusion of anterior hindgut with anterior or posterior most part of midgut or end of foregut the so called filter chamber is formed in insects belonging to order :
- (A) Coleoptera
  - (B) Lepidoptera
  - (C) Homoptera
  - (D) Diptera
20. Goblet cells are found in the insect order midgut :
- (A) Diptera
  - (B) Lepidoptera
  - (C) Hymenoptera
  - (D) None of the above
21. The pH of insect blood is about :
- (A) 8-9
  - (B) 9-10
  - (C) 5-6
  - (D) 6-7
22. According to Arnold (1974), how many types of haemocytes are found in insect blood ?
- (A) Three types
  - (B) Five types
  - (C) Seven types
  - (D) Nine types
23. Weismann ring is present in :
- (A) Caterpillars of Lepidopteran
  - (B) Nymphs of Hemipteran
  - (C) Maggots of Dipteran flies
  - (D) None of the above

24. Reproduction without fertilization means :
- (A) Parthenogenesis
  - (B) Oviparity
  - (C) Viviparity
  - (D) All of the above
25. Sensilla are developed from :
- (A) Epidermal cells
  - (B) Epithelial cells
  - (C) Regenerative cells
  - (D) None of the above
26. Enzyme secretion occurs without cell breakdown called as :
- (A) Holocrine
  - (B) Merocrine
  - (C) Endocrine
  - (D) All of the above
27. The insect intestine generally shows ..... of movements.
- (A) Two type
  - (B) Four type
  - (C) Five type
  - (D) Three type
28. The cellulose is digested by the termite with the help of symbiotic protozoan which are harboured in :
- (A) Foregut
  - (B) Midgut
  - (C) Hindgut
  - (D) None of the above
29. 'Power house of the cells' is :
- (A) Golgi bodies
  - (B) Plastids
  - (C) Centriole
  - (D) Mitochondria
30. Oxidation of carbohydrates is also known as :
- (A) Glycolysis
  - (B) Phosphorylation
  - (C) Both (A) and (B)
  - (D) None of the above
31. Bursa copulatrix is a part of :
- (A) Male reproductive organ
  - (B) Female reproductive organ
  - (C) Alimentary canal
  - (D) None of the above

32. Vitallarium is the major part of :
- (A) Testes
  - (B) Seminal vesicle
  - (C) Ovariole
  - (D) All of the above
33. More than one embryo is produced from a single egg known as :
- (A) Parthenogenesis
  - (B) Polyembryony
  - (C) Paedogenesis
  - (D) All of the above
34. Sympathetic nervous system is associated with :
- (A) Alimentary canal
  - (B) Circulatory system
  - (C) Both (A) and (B)
  - (D) None of the above
35. The taenidium prevents collapsing of :
- (A) Heart valve
  - (B) Pyloric valve
  - (C) Tracheal wall
  - (D) None of the above
36. Inspiration means :
- (A) Intake of oxygen
  - (B) Intake of carbon dioxide
  - (C) Release of carbon dioxide
  - (D) All of the above
37. Middle part of the brain is known as :
- (A) Protocerebrum
  - (B) Deutocerebrum
  - (C) Tritocerebrum
  - (D) None of the above
38. Deposition of yolk in the oocytes is called :
- (A) Oogenesis
  - (B) Spermatogenesis
  - (C) Vitellogenesis
  - (D) All of the above
39. In most insects, the sense of smell is localised in :
- (A) Tarsi
  - (B) Maxillary palp
  - (C) Frons
  - (D) Antennae

40. Which structure is not a part of central nervous system ?
- (A) Frontal ganglion
  - (B) Subesophageal ganglion
  - (C) Tritocerebrum
  - (D) None of the above
41. Average speed of nerve impulse in insect is :
- (A) 100/second
  - (B) 5 metre/second
  - (C) 50 metre/second
  - (D) None of the above
42. Cholinesterase in insect was first reported by :
- (A) Singh and Mehrotra, 1970
  - (B) Gautrelet, 1938
  - (C) Prosser, 1952
  - (D) None of the above
43. The wound healing in insect is done by :
- (A) Podocytes
  - (B) Spherule cells
  - (C) Plasmatocytes
  - (D) None of the above
44. Spiral thickening of intima in trachea is called :
- (A) Tracheole
  - (B) Spiracles
  - (C) Both (A) and (B)
  - (D) Taenidia
45. The blood cells which ingest dead cells are known as :
- (A) Phagocytes
  - (B) Oenocytes
  - (C) Proleucocytes
  - (D) Granulocytes
46. Peritoneal membrane is found in :
- (A) Rectum
  - (B) Oesophagus
  - (C) Midgut
  - (D) None of the above
47. The embryo begins to move within the yolk is called :
- (A) Organogenesis
  - (B) Blastokinesis
  - (C) Totipotency
  - (D) None of the above



48. Pheromones are secreted by :
- (A) Endocrine glands
  - (B) Exocrine glands
  - (C) Both (A) and (B)
  - (D) None of the above
49. Trail pheromone of termite isolated by :
- (A) Wilson (1962)
  - (B) Jacobson (1969)
  - (C) Brower (1966)
  - (D) Moore (1966)
50. The cerebral ganglion is also called as :
- (A) Brain
  - (B) Endocrine gland
  - (C) Ocellus
  - (D) None of the above
51. Ejaculatory duct is a part of :
- (A) Female reproductive organs
  - (B) Male reproductive organs
  - (C) Digestive organs
  - (D) All of the above
52. In grasshopper the tympanal organ is situated at :
- (A) Sixth abdominal tergum
  - (B) Third abdominal tergum
  - (C) Second abdominal tergum
  - (D) First abdominal tergum
53. The parthenogenesis, arrhenotoky in which :
- (A) Only males are produced.
  - (B) Only females are produced.
  - (C) Either sex is produced.
  - (D) All of the above
54. The tactile organs are :
- (A) Chemoreceptors
  - (B) Mechanoreceptors
  - (C) Both (A) and (B)
  - (D) None of the above
55. Which insecticide is banned by Supreme Court of India ?
- (A) Phosphamidon
  - (B) Phorate
  - (C) Endosulphan
  - (D) Monocrotophos

56. In an incomplete metamorphosis, an insect :
- (A) hatch into a small version of adult and grows through several instars
  - (B) hatch out as a caterpillar, grows, pupates, becomes different adult form
  - (C) is born live
  - (D) All of the above
57. The first President of Entomological Society of India :
- (A) H. S. Pruthi
  - (B) Ramkrishna Ayyer
  - (C) Afzal Hussain
  - (D) Ramchandra Rao
58. Salivary glands secrete anticoagulants in :
- (A) Beetles
  - (B) Mosquitoes
  - (C) Lizards
  - (D) None of the above
59. Meconium is a fluid emerged from :
- (A) Egg
  - (B) Larva
  - (C) Pupa
  - (D) Adult
60. Filter chamber in insect is related to :
- (A) Circulatory system
  - (B) Nervous system
  - (C) Excretory system
  - (D) Digestive system

***(Only for Rough Work)***

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the most correct/appropriate answer and mark the same in the OMR Answer-Sheet as per the direction :

**Example :**

**Question :**

Q. 1 (A) ☒ (B) (C) (D)

Q. 2 (A) (B) ☒ (C) (D)

Q. 3 (A) ☒ (B) (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

**Impt. :** On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर—A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से एक सबसे सही अथवा सबसे उपयुक्त उत्तर छोटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ☒ (B) (C) (D)

प्रश्न 2 (A) (B) ☒ (C) (D)

प्रश्न 3 (A) ☒ (B) (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

**महत्वपूर्ण :** प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।