

PG/Zool/3rd Sem/21(CBCS)

2021

ZOOLOGY

Paper Code : ZOOL 301

(Insect Biology and Food & Environmental Microbiology)
[CBCS]

Full Marks : 40

Time : Two Hours

The figures in the margin indicate full marks.

Write your answer within 1 page/200 words for the questions carrying 3 marks each and 2 pages/350 words for the questions carrying 6 marks each.

Group - A

(Insect Biology)

1. Answer any *two* questions from the following : 1×2=2
 - (a) What is podomere?
 - (b) What do you mean by temporal polyethism?
 - (c) Name one hormone secreted by Inca cells of insects.

2. Answer any *two* questions from the following : 3×2=6
 - (a) How hydrofuge hairs help in respiration? What is filter chamber? 2+1
 - (b) Write down the differences between exopterygota and endopterygota insects. 3
 - (c) State the characteristics that define the levels of sociality in honey bees. 3
 - (d) Compare hemimetabolous and holometabolous development in insects. 3

3. Answer any *two* questions from the following : 6×2=12
- (a) Discuss the types of respiratory system of insects on the basis of number and distribution of spiracles. Why do cockroaches store their nitrogenous waste? In which insect proventriculus is teeth like? 3+2+1
- (b) What do you mean by ecdysis? Describe with an appropriate diagram, the neuro endocrine integration in regulating insect metamorphosis. 1+5
- (c) Differentiate between siphoning type and sponging type of insect mouth parts. What do you mean by halteres and tegmina? 4+2
- (d) Why honey bees are considered as superorganisms? State the role of juvenile hormone in temporal polyethism. 4+2

Group - B

(Food & Environmental Microbiology)

4. Answer any *two* questions from the following : 1×2=2
- (a) Name the pigments produced by *Pseudomonas aeruginosa*.
- (b) Name the indicator present in TSI agar.
- (c) State the full form of PHEIC.
5. Answer any *two* questions from the following : 3×2=6
- (a) What is prebiotic? Give examples of two widely used prebiotics. Mention some effects of prebiotics. 1+1+1
- (b) State the role of face mask wearing in reducing the transmission of COVID-19. 3
- (c) Write a note on “gut-brain-microbiota” axis. 3
- (d) What is shelf-life of food? Explain with example. 3

6. Answer any *two* questions from the following : 6×2=12
- (a) Define probiotics and give examples. Illustrate the mechanism of actions of probiotics. 1+1+4
 - (b) Name the etiological agent of COVID-19. Illustrate the key events of COVID-19 up to the declaration of pandemic. Explain the terms quarantine, isolation and social distancing. 1+2+3
 - (c) Write the principle, method, results and quality control of oxidase and DNase tests in relation to the identification of bacteria. 3+3
 - (d) Write short notes on : 3+3
 - (i) bioterrorism
 - (ii) food spoilage
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