

Roll No. ....

Total No. of Questions : 9]  
(2033)

[Total No. of Printed Pages : 4

**UG (CBCS) IIIrd Year Annual Examination**

**3318**

**B.Sc. ZOOLOGY**

(Sericulture)

(SEC-III)

Paper : ZOOL 303 TH

**Time : 3 Hours]**

**[Maximum Marks : 70**

*Note :-* Attempt *five* questions in all, selecting *one* question from each of the Sections–B, C, D and E. Question No. 1 of Section–A is compulsory.

**Section–A**

**(Compulsory Question)**

1. (A) Do as directed :

(i) The non-mulberry sericulture is also called

..... .

(ii) The larva of *Bombyx mori* is commonly known as .....

**CA-518**

( 1 )

Turn Over

- (iii) Pebrine is a chronic disease in silkworm, which is caused by protozoan .....
- (iv) The process of killing silkworm pupa inside cocoon is termed as :
- (A) Doubling
  - (B) Reeling
  - (C) Deflossing
  - (D) Stifling
- (v) Write scientific name of Uzifly ?
- (vi) The Silk Mark Scheme was launched in ..... by Government of India.
- (vii) Central Tassar Research and Training Institute is situated in Mysore.
- (True/False)
- (viii) Young age silkworms up to second instar are called as .....
- (ix) In silkworm, the silk glands are modified ..... glands.
- (x) Which type of metamorphosis is found in the life-cycle of silk moth ? 1×10=10

(B) Write short notes on the following :

- (i) RKO
- (ii) Difference between Tassar and Eri silkworm
- (iii) Cocoon deflosser
- (iv) Sericulture Biotech Research laboratory  $2 \times 4 = 8$

### Section-B

- 2. Discuss about the origin and history of Sericulture in detail. 13
- 3. (a) Various types of silkworms and the kinds of silk they produce.
- (b) Silk Route and its present status.  $8+5=13$

### Section-C

- 4. Discuss the life-cycle of *Bombyx mori* with the help of labelled diagrams. 13
- 5. (a) Classification of *Bombyx mori*.
- (b) Discuss silk glands in detail.
- (c) Cocoon drying and its storage.  $2+4+7=13$

### Section-D

6. Discuss about rearing methods, ideal environmental conditions, feeding and moutage care in detail. 13
7. (a) Types of Moutages and characteristics of ideal moutage.
- (b) Disinfectants used in Sericulture. 8+5=13

### Section-E

8. Describe prospects of sericulture in India along with challenges for the future. 13
9. (a) Muscardine disease silkworm.
- (b) Flacherie disease of silkworm.
- (c) Important pest of silkworm. 4+4+5=13

Roll No. ....

Total No. of Questions : 9]  
(2033)

[Total No. of Printed Pages : 4

**UG (CBCS) IIIrd Year Annual Examination**

**3312**

**B.Sc. ZOOLOGY**

(Applied Zoology)

(DSE-IA)

Paper : ZOOL 301(A)TH

**Time : 3 Hours]**

**[Maximum Marks : 50**

*Note* :- Attempt *five* questions in all. Q. No. 1 in Section A is compulsory. Attempt *one* question from each Section. Attempt all parts of a question together. Draw suitable diagrams wherever necessary.

**Section-A**

**(Compulsory Question)**

1. (i) Intermediate host of *Trypanosoma gambiense* is .....
- (ii) A lymph inhabiting parasite is :
- (a) *Schistosoma haematobium*

**CA-512**

( 1 )

Turn Over

(b) *Wuchereria bancrofti*

(c) *Paragonimus westermani*

(d) *Tenia solium*

(iii) Typhoid fever is caused by .....

(iv) Copulatory bursa is found in the male :

(a) Hookworm

(b) Filarial worm

(c) Pinworm

(d) Trichina worm

(v) The Brill-Zinsser disease is caused by .....

(vi) The scientific name of Cotton Bollworm is .....

(vii) The cigar-shaped eggs occur in.....species of mosquito.

(viii) Sandfly is a vector of .....

(ix) The most efficient method for commercial storage of eggs is .....

(x) Ovaprim is .....

1×10=10

CA-512

( 2 )

### Section-B

2. (a) Write brief notes on the following :

(i) Reservoir host

(ii) Parasitism

(iii) Symbiosis

(b) Discuss briefly, the pathogenicity of *Treponema pallidum*. 6+4=10

3. (a) Give an account of the life-history and pathogenicity of *Plasmodium vivax*.

(b) Give a brief account of morphological characters of *Borrelia recurrentis*. 6+4=10

### Section-C

4. (a) Discuss biology, control and damage caused by *Stiophilus oryzae*.

(b) Write a note on the economic importance of *Tribolium castaneum*. 6+4=10

5. (a) Discuss the medical importance of the following briefly :

(i) *Xenopsylla cheopis*

(ii) *Culex*

CA-512

( 3 )

Turn Over

- (b) Discuss the life-history and pathogenicity of *Ancylostoma duodenale*. 5+5=10

#### Section-D

6. (a) Give an account of the transportation of fish seed.
- (b) Discuss the advantages and disadvantages of artificial insemination. 6+4=10
7. (a) Discuss biology, control and damage caused by *Helicoverpa armigera*.
- (b) Discuss briefly, the damage caused by *Callosobruchus chinensis*. 6+4=10

#### Section-E

8. (a) Discuss systems of selection in poultry.
- (b) Write a note on poultry breeding research in India. 6+4=10
9. (a) Discuss genetic improvements in the aquaculture industry.
- (b) Discuss briefly, the advantages and disadvantages of sex separate rearing of broilers. 6+4=10

Roll No. ....

Total No. of Questions : 9]  
(2033)

[Total No. of Printed Pages : 4

**UG (CBCS) IIIrd Year Annual Examination**

**3319**

**B.Sc. ZOOLOGY**

(Aquarium Fish Keeping)

(SEC-IV)

Paper : ZOOL 304 (A) TH

Time : 3 Hours]

[Maximum Marks : 70

*Note* :- Attempt *one* question each from Sections B, C, D and E. Question No. 1 is compulsory. Different parts of a question must be attempted at one place together.

**Section-A**

**(Compulsory Question)**

1. (A) Very short answer type questions :

(i) The scientific name of Angel fish is  
..... .

(ii) ..... is an example of cold water fish.

(iii) The full form of ME is .....

**CA-519**

( 1 )

Turn Over



- (iv) Methylene blue or Acriflavine act as ..... agent, used in water for fish transportation.
- (v) Give an example of exotic fish.
- (vi) In India the best Aquarium is located at :  
 (a) Z.S.I Calcutta  
 (b) Tarapur, Bombay  
 (c) Madras  
 (d) Vishakhapatnam
- (vii) The device is used to add or remove water to an aquarium :  
 (a) Hydrometer  
 (b) Siphon  
 (c) Filter  
 (d) Heater
- (viii) The full form of LDPE is .....
- (ix) Aquaculture is culture of :  
 (a) Ornamental fishes  
 (b) Prawns  
 (c) Frog  
 (d) None of these
- (x) ..... is known as tetrachromats.  $1 \times 10 = 10$

CA-519

( 2 )

- (B) (i) Write scientific name of rainbow fish.  
 (ii) Different types of aquariums.  $2 \times 2 = 4$

Section-B

2. (a) Describe the potential scope of aquarium fish industry as Cottage Industry.  
 (b) Give an account of guppy and butterfly fish. 7.7
3. (a) Differentiate between fresh water and marine water aquarium fishes.  
 (b) Describe in detail the advantages of aquarium fish keeping. 9.5

Section-C

4. (a) Describe the process of preparation and composition of formulated fish feeds.  
 (b) Give an account of live fish food. Why is it important ? 9.5

5. Explain the various types of fish feed. What are their advantages and disadvantages ?

14

Turn Over

CA-519

( 3 )

### Section-D

6. (a) Give an account of live fish transportation.  
(b) Explain briefly the safety measure during transportation. 9.5
7. (a) Write briefly about conditioning of fish before transportation.  
(b) Write down about fish handling and packing. 7.7

### Section-E

8. Describe stepwise detailed process of aquarium building. 14
9. (a) What are the main processes in general aquarium maintenances?  
(b) Give an account of aquarium fish disease. 9.5

Roll No. 2200350045

Total No. of Questions : 9]  
(2033)

[Total No. of Printed Pages : 4

UG (CBCS) IIIrd Year Annual Examination

**3287**

**B.Sc. CHEMISTRY**

(Polynuclear Hydrocarbons, Dyes, Heterocyclic  
Compounds and Spectroscopy)

(UV, IR, NMR)

(DSE-2A)

Paper : CHEM 301 TH

Time : 3 Hours]

[Maximum Marks : 50

*Note :- Attempt five questions in all, selecting one question each from Sections A, B, C and D. Section E is compulsory.*

**Section-A**

1. (a) How can you prepare Naphthalene by ?
- (i) Fittig Synthesis
  - (ii) Diels-Alder Reaction
- (b) Explain general mechanism of electrophilic substitution reactions of naphthalene. Discuss orientation of mono-substitution in naphthalene. 5,5

**CA-487**

( 1 )

Turn Over

2. (a) Discuss resonance and orbital structure of Anthracene.  
 (b) Explain why 9 and 10 positions of Anthracene are more reactive than other positions towards substitution and addition reactions.  
 (c) Draw the structure of :

- (i) Indigo dye  
 (ii) Phenolphthalein

4.4.2

**Section-B**

3. (a) Explain the molecular orbital structures of pyrrole, furan and thiophene and compare their aromatic character.  
 (b) Discuss the general mechanism of electrophilic substitution reaction in five membered heterocyclic compounds.  
 (c) Complete the following reactions :
- (i)  $\text{Pyrrole} + \text{H}_2 \xrightarrow{\text{Ni}} ?$   
 (ii)  $\text{Furan} + \text{SO}_3 \xrightarrow{\text{Py}} ?$       4.4.2
4. (a) How can you prepare Pyridine from :
- (i) Acetylene  
 (ii) Pyrrole  
 (iii)  $\beta$ -Picoline ?
- (b) Explain the mechanism and orientation of nucleophilic substitution reactions of Pyridine.  
 (c) Explain two electrophilic substitution reactions of Indole.      3.3.4

CA-487

( 2 )

**Section-C**

5. (a) What is principle of UV-spectroscopy ? Discuss various types of electronic transitions in case of UV-visible regions.  
 (b) Calculate  $\lambda_{\text{max}}$  for :



- (c) Write three applications of UV spectroscopy.      4.3.3  
 6. (a) What are fundamental vibration ? Discuss each type of fundamental vibration.

- (b) What do you understand by fingerprint region in IR spectrum ?

- (c) Write notes on :

- (i) Auxochromes  
 (ii) Bathochromic shift      4.3.3

**Section-D**

7. (a) Discuss the principle of Proton Magnetic Resonance (PMR).  
 (b) What do you understand by shielding and deshielding of protons ? Discuss the factors responsible for this.  
 (c) What is TMS ? Why is it the most common reference compound in NMR spectroscopy ?      4.4.2

CA-487

( 3 )

Turn Over

8. (a) Explain spin-spin coupling with suitable examples.
- (b) Explain the characteristic feature of PMR spectrum in case of Ethyl Bromide.

5.5

### Section-E

9. Do as directed :

- (i) Naphthalene is .....  
(Aromatic/Antiaromatic)
- (ii) Nitration of Pyrroles gives .....
- (iii) Due to conjugation ..... shift is observed in  $\lambda_{\max}$  values.
- (iv) Ethanol has ..... types of magnetically equivalent protons.
- (v) Vibrational transitions are mainly caused by ..... radiations.
- (vi) In chloroform ( $\text{CHCl}_3$ ) the proton is .....  
(Shielded/Deshielded)
- (vii) Pyrrole is slightly acidic in behaviour.  
(True/False)
- (viii) Indole has condensed structure of carbocyclic and pyrrole ring.  
(True/False)
- (ix) Malachite green is a triphenyl methane dye.  
(True/False)
- (x) Pyridine is a stronger base than aliphatic tertiary amines.  
(True/False)

1×10=10