

**Post Graduate Teaching Department of Zoology**  
**An Autonomous Department of**  
**Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**  
**M. Sc. Zoology Semester -III (CBCS)**  
**Special Group: Mammalian Reproductive Physiology-II**  
**Theory Examination Winter-2022**  
**Name of the Paper: 3T3: Reproductive Process in Female**

**Time: 3hrs**

**Maximum Marks: 60**

**Note**

- 1. All the questions are compulsory.**
- 2. All questions carry equal marks.**
- 3. Draw well labelled diagrams and charts wherever necessary.**

**Q.1** Describe in detail the process and mechanism of hormonal regulation of folliculogenesis. **12**  
OR

**Write notes on: -**

- (a) Dominance of follicle and signaling for ovulation.
- (b) Steroid hormone synthesis (2 gonadotropin, 2 cell concept).

**Q.2** Define estrous cycle? Describe in detail the different stages of estrous cycle in mammals and its hormonal regulation. **12**

OR

**Write notes on: -**

- (a) Corpus luteum.
- (b) Hormonal control of ovulation.

**Q.3** Describe the structure, regional differentiation and functions of oviduct. **12**  
OR

**Write notes on: -**

- (a) Cervix: Structure and functions.
- (b) Types of uterus.

**Q.4** Give a detail account on anatomy and growth of mammary gland. **12**  
OR

**Write notes on: -**

- (a) Role of prostaglandins in reproduction.
- (b) Landmarks of puberty in male and female.

**Q. 5 Write in brief on the followings: -** **12**

- (a) Recruitment of follicles
- (b) Menopause.
- (c) Vaginal plug.
- (d) Delayed puberty.

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**Special Group: Animal Physiology-II**  
**Theory Examination Winter-2022**

**Name of the Paper: 3T3: Physiology of Circulation**

**Time: 3hrs**

**Maximum Marks: 60**

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**Note**

- 1. All the questions are compulsory.**
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- 3. Draw well labelled diagrams and charts wherever necessary.**

**Q.1** Describe the anatomy, histology and nerve innervation of the heart. Add a note on heart valves. **12**

OR

**Write notes on: -**

- (a) Structure, properties and function of cardiac muscles.
- (b) Blood pressure and factors affecting blood pressure.

**Q.2** What is cardiac cycle? Explain the events of cardiac cycle in detail. **12**

OR

**Write notes on: -**

- (a) Haemodynamics.
- (b) Cardiac failure.

**Q.3** Describe in detail cellular composition and functions of blood. **12**

OR

**Write notes on: -**

- (a) Anemia and blood substitute.
- (b) Hypolipidimia and hyperlipidimia.

**Q.4** Give a detail account on the mechanism of transport of O<sub>2</sub> and CO<sub>2</sub> by blood. **12**

OR

**Write notes on: -**

- (a) Coagulation of blood.
- (b) Lymph – composition, formation and functions.

**Q. 5 Write in brief on the followings: -** **12**

- (a) Pace makers.
- (b) Heart sound.
- (c) ABO blood group system.
- (d) Blood disorders.

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**M. Sc. Zoology Semester -III (CBCS)**

**Special Group: Entomology-II**

**Theory Examination Winter-2022**

**Name of the Paper: 3T3: Classification and Industrial Insects**

**Time: 3hrs**

**Maximum Marks: 60**

**Note**

- 1. All the questions are compulsory.**
- 2. All questions carry equal marks.**
- 3. Draw well labelled diagrams and charts wherever necessary.**

**Q.1** Describe general characters and classification of order Mallophaga. **12**

OR

**Write notes on: -**

- (a) General characters of Siphonaptera.
- (b) Classification of Collembola.

**Q.2** Describe general characters and classification of order Lepidoptera. **12**

OR

**Write notes on: -**

- (a) Acridoidea.
- (b) Heteroptera.

**Q.3** Give a detail account on the life cycle of *Bombyx mori*. Add note on silk gland and silk protein. **12**

OR

**Write notes on: -**

- (a) Bacterial disease of *Bombyx mori*.
- (b) Seed production in *Bombyx mori*.

**Q.4** Describe the life cycle of *Antheraea mylitta*. Add note on host plant rearing and silk production. **12**

OR

**Write notes on: -**

- (a) Eri silkworm host plant rearing and silk production.
- (b) Bee rearing management and disease.

**Q. 5 Write in brief on the followings: -** **12**

- (a) Siphunculata.
- (b) Coleoptera.
- (c) Viral diseases of *Bombyx mori*.
- (d) Types of the honey bee of India

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**M. Sc. Zoology Semester -III (CBCS)**  
**Special Group: Fish and Fisheries-II**  
**Theory Examination Winter-2022**  
**Name of the Paper: 3T3: Applied Fisheries**

**Time: 3hrs**

**Maximum Marks: 60**

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**Note: -**

- 1. All the questions are compulsory.**
- 2. All questions carry equal marks.**
- 3. Draw well labelled diagrams and charts wherever necessary.**

**Q.1** Explain in detail fresh water fisheries of India. **12**

OR

**Write notes on: -**

- (a) Marine fisheries of India.
- (b) Cage culture.

**Q.2** Write in detail on culture of Indian major carps. **12**

OR

**Write notes on: -**

- (a) Sewage fed fisheries.
- (b) Fish farming with paddy and poultry.

**Q.3** Describe in detail Trout culture. **12**

OR

**Write notes on: -**

- (a) Culture of Spirulina.
- (b) Culture of air breathing fishes.

**Q.4** Write an account on Pearl culture. **12**

OR

**Write notes on: -**

- (a) Crab culture.
- (b) Frog culture.

**Q. 5** Write in brief on the followings: - **12**

- (a) Neuroendocrine control of carp reproduction.
- (b) Monosex culture.
- (c) Oviparous fishes.
- (d) Life cycle of prawn.