

Implemented From June 2015
CBCS PAPER I: APPLIED ZOOLOGY

Unit 1: Aquaculture

1. Construction, management and economics of freshwater fish farm
2. Composite fish culture
3. Induced breeding of freshwater fishes
4. Larvivorous fishes in relation to public health
5. Fish pathology and treatment

Unit 2: Sericulture

1. Geographical distribution of Mulberry and non-mulberry Sericulture
2. Mulberry Silkworm Rearing Technology
3. Tasar Silkworm Rearing Technology
4. Eri Silkworm Rearing Technology
5. Muga Silkworm Rearing Technology
6. Reeling and Economics of Sericulture

Unit 3: Apiculture and Vermicomposting

1. Honey bee species for Apiculture
2. Social organization of Honey bee
3. Methods of Bee keeping
4. Products of Bee keeping and Economic importance
5. Earthworm morphology and suitable species for Vermicomposting
6. Process and components of a commercial Vermicomposting

Unit 4 Animal husbandry and Dairy Science

1. Important Indian and Exotic breeds of cattle and buffalo.
2. Importance of cattle and buffalo in Indian economy.
3. Terminology used in live-stock production.
4. Feeding and management of calf, heifer, pregnant and milking. Fodder production.

5. Housing systems for cattle and buffalo.
6. Fertility, sterility and reproductive behavior of cattle.
7. Milk secretion, factors affecting milk yield, consumption, hygienic milk production.
8. Economics of milk production.
9. Production of indigenous milk and Dairy products-

Composition of milk, milk preservatives, adulterants, and dairy detergents, buttermilk, caesin, whey, fat-rich dairy products, fermented milk products, concentrated milk products, condensed and dried milk products (ice-cream Shreekhand. Paneer, Pedha, Rasgullas, butter, ghee, Chees and others.)

Recommended books:

- 1) Fishery Science: W.C. Royce.
- 2) Fisheries development of India: U.K. Shrivastava and M. Dharma Reddy
- 3) Fish farming hand book: E.E. Brown and J.B. Gratzek
- 4) Fish and Fisheries of India: V.G. Jhingran
- 5) Fishery management: S.C. Agarwal
- 6) Applied fishery science (Vol. I & II): S.M. Shafi Anonymous (1972): FAO manuals on Sericulture Vol. I-IV.
- 7) Silkworm Rearing Technology (Singh, G.B.)
- 8) Sericulture Extension Management & Economics (P.Kumaresan & G.Srinivasa)
- 9) Animal Husbandry: ICAR publication
- 10) Live-stock production and management: G C Banerjee.
- 11) Animal Nutrition: C G Banerjee.
- 12) Dairy Technology Practices: Sukumar DEY
- 13) Manual of Dairy Processing : Mathur M P and Mann R S (ISBN-818653539X)
- 14) Srivastava K. P. (1993). A text book of Applied Entomology. Kalyani Publishes, New Delhi. PP 507
- 15) Sachan G. C. (2004). Element of Entomology. Rastogi Publication, Meerut. PP 564.
- 16) Shukla G.S. and Upadhyay V. B. (2011). Economic Zoology. Rastogi Publication, Meerut. PP 487.

- 17) Mary Appelhof (2003). Worms Eat my Garbage: How to set up and maintain a worm composting system.

CBCS PAPER 2: BIOLOGY OF REPRODUCTION

Unit No. I: Male reproductive system

- 1) Male reproductive system: The testis, The Scrotum, Ductuli efferentes, the epididymis, Vasa deferentia, The penis, the Prostate gland, Seminal vesicle, Bulbourethral glands.
- 2) Spermatogenesis
- 3) Kinetics of Spermatogenesis
- 4) Biology of spermatogenesis: Abnormalities of spermatozoa, Sperm maturation, Sperm transport in the male genital tract, Sperm storage in the male genital tract, Sperm survival in the male genital tract, sperm motility, Ejaculation and Insemination, Biochemistry of semen, Artificial insemination, Immunobiology of the sperm, Cytogenetics of the sperm.
- 5) Sperm in the female genital tract
- 6) Fertilization

Unit No. II Female reproductive system

- 1) The female reproductive system: The ovary, The oviduct, The uterus, The vagina
- 2) Reproductive cycles –Estrous cycle, Menstrual cycle
- 3) Implantation of the blastocyst
- 4) Delayed implantation
- 5) Pregnancy
- 6) Placenta
- 7) Parturition
- 8) Lactation

Unit III - Male and Female Infertility

- 1) Infertility –Primary and Secondary infertility, Genetic and Acquired factors, age related, hormonal disturbance, psychological factor.
- 2) Causes of Male infertility- Pre-testicular causes, Testicular and Post testicular factors, physical examination, sperm sample
- 3) Causes of Female infertility- Pre ovarian, ovarian, and Post ovarian factors, Female tract defects.
- 4) Signs and symptoms of male and female reproductive defects.
- 5) Social and psychological factors

Unit IV- Assisted Reproductive Techniques

- 1) Basics of Vitro Fertilization (Test tube baby)
- 2) Intrauterine insemination (IUI)
- 3) Gamete Intra Fallopian Transfer (GIFT)
- 4) Zygote Intra Fallopian Transfer (ZIFT)
- 5) Intra-Cytoplasmic Sperm Injection (ICSI)

Recommended Books:-

- 1) Text book of medical physiology: A.C. Guyton
- 2) Animal Physiology: Mohan P. Arrora
- 3) Genetics: P. K. Gupta
- 4) General physiology: Mc.Graw. Hill
- 5) Concise medical physiology: S. K. Chaudhari
- 6) Human physiology. Vol. I: C. C. Chatterjee