POULTRY DISEASES

Poultry diseases : at a glance is written in a very simple and lucid manner so that everybody can read and understand the poultry diseases very easily. The book is useful for scientists, teachers, students, officers, diagnosticians and researchers as poultry diseases are of paramount importance and causing enormous economic losses in the poultry industry. The book has covered not only the diseases of infectious nature but also the metabolic and nutritional diseases. It contains the latest information in a very palatable manner so that everybody can make use of it with full potential. It will be equally useful to the poultry consultants, diagnosticians, pharmaceutical professionals and particularly student community to face the various internal, external, entrance and competitive examinations with a greater degree of confidence.

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POULTRY DISEASES at a glance

S. Nandi
S. Samanta

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at a glance

S. Nandi * S. Samanta

Preface

Poultry farming has become a profitable industry and has enormous potential to bring about rapid economic growth. Poultry farming in India has been transformed from backyard poultry in 1960s to a full-fledged agro-industry today at a rapid pace in just over 4 decades. India ranks fourth in egg production and fifth in broiler production in the world. The layer industry is growing at the rate of 5-7% against the broiler industry at 10-12% per annum. However, the per capita availability of eggs and broiler meat is far below the ICMR recommended level of 180 eggs and 11 Kg meat per annum. Currently, the poultry industry has the strength of 215 million layers and 1600 million broilers to produce in a year 1.9 MMT of meat and 44 billion eggs. The poultry industry is contributing about Rs 350 billion to the national GDP. Birds have been threatened by a number of infectious diseases and nutritional diseases for quite a long time. Diagnosis at an early stage of the onset of the disease has tremendous implication on the successful therapy and implementation of effective control programme. This book has been written to provide a comprehensive picture of different viral, bacterial, fungal, parasitic, chlamydial, spirochaetal, nutritional and metabolic diseases in the for of objective type questions and short notes. In this book most relevant and current informations in the form of objective type questions have been given in a concise, palatable and easily digestible fashion and it will be extremely useful for the students, teachers and researchers connected to the poultry industry. It contains the latest and in depth infromations in a very simple and easily understandable manner that can be easily and readily accepted by the student community.

With the implementation of new trimester/semester systems, the students have to face a number of quizzes, midterm and final examinations. This system evaluates the

student's learning capability and teacher's teaching techniques on a regular basis. Mostly objective type and short notes are asked in the examinations. Again, in various competitive examinations namely IAS, IPS, IFS, CSIR, ICMR, ICAR, NET, JRF, SRF etc objective type questions are set to evaluate the depth of knowledge of a particular subject of the students. Further , a number of organization/institutions hold regular examination for admission in various degree programmes, award of merit scholarships and appointment on various jobs based on objective type questions.

It is therefore hoped that the book will be extremely useful for teachers as well as students and personnel of Veterinary Sciences and other disciplines of various institutions particularly associated with the poultry industry.

Lastly, the authors will appreciate receiving comments on the quality of books and errors if any for further improvement of the book.

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About the Authors

Dr Sukdeb Nandi graduated in Veterinary Science and Animal Husbandry in 1986 from Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, W.B. He did his Master Degree and Ph. D. in Veterinary Virology from Deemed University, Indian Veterinary Research Institute in 1988 and 1992 respectively. He has been associated with teaching Veterinary Virology in the Deemed University, Indian Veterinary Research Institute for last 16 years. He is also involved in imparting trainings on serological and molecular diagnosis of different Viral Diseases of animals. He was awarded with DBT sponsored National Biotechnology Associateship and carried out research on biotechnological and molecular techniques of diagnosing the diseases at Indian Institute of Chemical Biology, CSIR Institute at Jadavpur, Kolkata from 1995 to 1996. He was also deputed to United Kingdom in 1998-1999 to undergo 'Transfer of Molecular Biology Training' (TOMBIT) at Institute for Animal Health, Pirbight to work on molecular aspects of Foot and Mouth Disease Virus. He has carried out research on Rabies, FMD, Sheep Pox, Goat Pox, Bluetongue, Infectious Bovine Rhinotracheitis and Canine Parvovirus infections in canines. He has traveled different places in United Kingdom, Scotland and France. Presently, he is working as Senior Scientist at Centre for Animal Disease Research and Diagnosis, Indian Veterinary Research Institute, Izatnagar, U.P. He is also the author of 'Manual of Viral Disease Investigation' – a book very much useful for the scientists, teachers, students, diagnosticians and others who are working in this area. Other books in his credit are Veterinary Virology: at a glance, Avian influenza or Birdflu and Rabies : a killer disease.

Dr. Subhamoy Samanta, an eminent parasitologist, is presently working as Senior Scientist in the Division of Parasitology, at prestigious premier research establishment,

Indian Veterinary Research Institute, Izatnagar, UP. He did his B.V.Sc.& A.H degree from Bidhan Chandra Krishi Vishwa Vidyalaya,W.B in 1986 and completed M.V.Sc in Veterinary Parasitology from Birsa Agricultural University, Ranchi in 1988 and Ph.D from Deemed university, Indian Veterinary Research Institute in 1999. He was an excellent scholar with the honour of securing first division/class with scholarships throughout his career. He joined as Agricultural Research Service Scientist at IVRI, Izatnagar, UP in 1992. He has vast experiences in research, teaching of PG studies of Deemed University, IVRI and also engaged in various extension activities on surveillance and monitoring, diagnosis and control of parasitic diseases. He is associated with several research projects including DBT sponsored and All India Network Programme. He has worked on immunological and molecular based characterization and diagnosis of parasitic zoonosis viz. toxocariasis, hydatidosis, cryptosporidiosis, toxoplasmosis, fasciolosis, dirofilariosis, vector borne diseases and so on. His research findings are presented in various scientific forum and published in various international and national journals of repute. He is also involved in imparting training on various aspects of parasitic diseases at national and international level.

Content

Chapter 1

Avian Immune System

A. Fill in the blanks.

Q.1. – – – – – – – – and – – – – – – – – – – are the primary lymphoid organs in birds.

A. Thymus and bursa of Fabricius.

Q.2. In thymus, – – – – – – – is densely packed with lymphocytes and – – – – – – – – – is less densely packed with lymphocytes.

A.. Cortical area and medulla.

Q.3. First line of defense is provided by innate immune mechanisms such as – – – – – – –, – – – – – – – and – – – – – – (cells/biomolecule).

A. Phagocytic cells (heterophils, macrophages) ; NK cells ; C′.

Q.4. – – – – – – –, – – – – – – and – – – – – – – can act as antigen presenting cells.

A. Macrophages ; dendritic cells ; B cells.

Q.5. γδ T cells constitute – – – – – – – % of the circulating lymphocytes.

A. 30-50.

Q.6. Th1 cells produces – – – – – – –, – – – – – – – – and – – – – – – – cytokines.

A. Interferon γ, TNF α and IL-2.

Q.7. Th2 cells produces – – – – – – –, – – – – – – – – and – – – – – – – cytokines.

A. IL-4, IL-5 and IL-10.

Q.8. Chicken have 3 major classes of immunoglobulins namely – – – –, – – – and – –.