Chittagong Veterinary and Animal Sciences University

Department of Pathology and Parasitology

Final Examination of Master of Science in Parasitology

Semester: July- December'2023

Course Title: Protozoology

Course Code: PRT - 602

Time: 2 hours **Totalmarks: 40**

Answer any **FOUR (4)** questions from the following. Figures in the right margin indicate the full marks.

1. a). Illustrate the process of nutrition uptake of protozoa from a host. Enumerate the movement and reproduction of a typical protozoan. 5

   b). Draw and label a typical protozoan. Why protozoa are culture in media? Mention five (5) media with their specific protozoa. 5

2. a). Draw and label the differential morphological characters of the oocysts of protozoa belonging the genera Eimeria, Isopora, Wenyonella and Cryptosporidium. Enlist the coccidian species of poultry in Bangladesh. 5

   b). Write short note on any two (2) of the following: 2.5X2=5

   i)Dumdum feverii)*Babesia gibsoni*infection in dog iii) Black head disease in turkey iii) "Immune evasion" of trypanosomes

3. a). Enlist the protozoa that cause abortion in cow.How will you manage a bull and cow infected with *Tritrichomonas foetus*. 5

   b). List the species which cause Babesiosis in cattle, horse, goat, dog, cat and pig.Illustrate the epidemiological factors and the pathogenesis of babesiosis in cattle. 5

4. a). Why protozoa are cultured in media? Listed five (5) media with their specific protozoa. Illustrate the role of cat and sheep in transmission of toxoplasmosis. 5

   b). Mention the haemoprotozoa of ruminants. How do you diagnose Bovine Anaplasmosis. 5

5. a). Illustrate the life cycle and control features of anaplasmosis in nanny goat. 5

   b). List the species of *Theileria*that occur in cattle. Sketch the life cycle of*Theileria parva in* bull. 5

Chittagong Veterinary and Animal Sciences University

Department of Pathology and Parasitology

Final Examination of Master of Science in Parasitology

Semester: July- December'2023

Course Title: Zoonotic Parasites (Theory)

Course Code: ZPR -602

Time: 2 hours **Total marks: 40**

Answer any **FOUR (4)** questions from the following. Figures in the right margin indicate the full marks.

1.	a).	Define and classifyzoonoses? Mention the importance factors that influence the occurrences of zoonotic parasites in development country.	5
	b).	Illustrate the routes and methods of transmission and control of zoonotic parasitic diseases.	5
2.	a).	Mention the public health significance of Leishmaniosis and Trypanosomiosis.	5
	b).	How will you diagnose the following diseases? i). Cryptosporidiosis ii) Opisthorcosis	5
3.	a).	Illustrate the morphology, life cycle, pathogenesis and pathology of *Echinococcus granullosus*.	5
	b).	Enlisted the parasites which cause infection through penetration of skin. Briefly describe zoonotic Ancylostomiosis.	5
4.	a).	How does *Diphyllobothrium latum* cause pernicious anaemia? Mention the transmission pattern and life cycle of *Trichinella spiralis.*	5
	b).	Illustrate the morphology and life cycle of *Echinostomarevolutum* in duck.	5
5.	a)	Write short note on Giardiosis and Sarcocystis infection in nanny goat.	6
	b).	Write down the scientific name of parasites which causesthe following conditions:i) Cercarial dermatitis ii) Aneurysm	2X2=4

Chattogram Veterinary and Animal Sciences University

Faculty of Veterinary Medicine

Department of pathology and parasitology

MS in Parasitology (July-December semester) Final Examination'2023

Course title: Parasitic Ecology and Epidemiology

Course code: PEE-602

Full marks: 40 Time: 2 hours

Answer all the questions from the following:

1. (a) Mention the bionomics of *Haemonchus* sp and *Eimeria* sp. 5

b) What do you mean by endemic, pandemic, epidemic and outbreak. Give examples. 5

2. (a) Design the systemic approach of outbreak investigation. 5

(b) Define biotic and abiotic factors with example. Briefly describe the effects of two factors on the infection biology of parasites. 5

3. a) Write down the mechanism of water balance in unfed tick populations. 5

b) Briefly describe the factors that contribute to the long survival of Ascarid eggs in the environment. 5

4. a) Define experimental design. How can you measure the occurrence of disease in a herd. 5

b) Define population dynamics. What does determine the total number of parasites in a host population. 5

Chittagong Veterinary and Animal Sciences University
Department of Pathology and Parasitology
Final Examination of Masters of Science in Parasitology
Course title: Molecular Parasitology (Theory)
Course code: MPR-602
Semester: July-December'2023

Time : 2 hours Marks : 40

Answer any **FOUR** questions from the following: 4x10=40

1. a. Define gene, genome and transcriptome. Describe "central dogma" in biology.
   b. Discuss the application of molecular biology in parasitology research. Give example.

2. a. What are the possible factors for emerging of new parasites in the world? How will you identify them?
   b. What is PCR? List the consumables required for a PCR assay with the principles and application of PCR in diagnostic parasitology research.

3. a. Briefly describe the principles, methods and application of Southern and Western blot.
   b. Describe molecular mechanism of immune evasion in trypanosomes with diagram.

4. a. Define mRNA and tRNA and their functions.
   b. Draw and label the structure of ten important amino acids.

5. a. Mention the different methods of gene sequencing. Illustrate the feature of Apicomplexan parasite genome.
   b. Discuss with example- parasitic drug resistance. How can molecular tools help in characterization of genes associated with drug resistance?

6. Write short notes on (any two):-
   a. Watson and Crick model of DNA
   b. CRISPR Cas-9 technology
   c. RFLP analyses
   d. RT-PCR assay

Chattogram Veterinary and Animal Sciences University
Department of Pathology and Parasitology
Final Examination of Master of Science in Parasitology
Semester: July- December'2023
Course Title: Entomology , Course Code: EPR- 602

Time: 2 hours **Total marks: 40**

Answer any <u>FIVE (5)</u> questions from the following. Figures in the right margin indicate the full marks.

1. Suppose you are working as an "Entomologist" at the "Public Health Division" of ICDDR,B. It is one of your responsibilities to collect mosquito specimens from different 'Dengue Hot spot' areas of Dhaka city and identify those in the relevant laboratory. How will you respond to the following questions to expand your comfort zone during working on the project. 8
   - a. How will you identify and differentiate the mosquito vectors that carries 'Dengue virus' with other genera available in Bangladesh? [4]
   - b. What are the rationales of using oil-based insecticide to kill the larval stages of mosquitoes? [2]
   - c. What strategies can be adopted for the prevention and control of 'Dengue' outbreak' in the mentioned region? [2]

2. You got an opportunity to face an interview for a 'Scientific Officer' post to work in a project entitled 'Identification of available vectors and vector-borne diseases in Bangladesh' funded by an international organization through 'Institute of Epidemiology Disease Control And Research'. The interviewers asked some relevant questions related to entomology to justify your suitability for the position mentioned. How will you respond to the following questions asked by an interviewer? 8
   a. What is arthropods? Categorize vectors with an appropriate example. [2]
   b. What do know about the external anatomical structure of an arthropod? [2]
   c. Mention types of metamorphosis with appropriate example in each case? [2]
   d. How does knowledge on the 'structure of the cuticle of an arthropod' assist in selecting an appropriate insecticide? [2]

3. Mention the vector importance of the following. 4X2=8
   a. *Anopheles* sp b *Boophilus* sp c. *Tabanus* sp d. S*imulium* sp

4. How do you morphologically identify the following in a parasitology laboratory? 4X2=8
   a. *Phlebotomus* sp b. *Culicoides* sp c. *Haematopinus* sp d. *Knemidocoptes* sp

5. a. Differentiate different important genera of Tabanidiae family. 8
   b. 'Tabanus' is more efficient mechanical vector than 'Housefly'-Explain why?

6. a. Describe the pathogenic significance of 'fleas' and 'mite' infestation in animals.[2+2] 8
   b. Depict the salivary glands of a tick and its role in blood sucking and maintaining water balance in adverse conditions. [4]

7. a. Briefly describe the morphological features, life cycle and pathogenesis of ' *Gasterophilus intestinalis* ' infestation in horse. [4] 8
   b. Write short notes on 'Myiasis' and 'tick paralysis'. [2+2]

Chattogram Veterinary and Animal Sciences University
Department of Pathology and Parasitology
Final Examination of Master of Science in Parasitology
Semester: July- December'2023
Course Title: Entomology , Course Code: EPR- 602

Time: 2 hours **Total marks: 40**

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Chattogram Veterinary and Animal Sciences University
Department of Pathology and Parasitology
MS in Pathology
July- December Semester Final Exam. 2023
Sub: Avian Pathology. Course code- APT-602
Total Marks- 40, Time- 2 hours.

Figures in the right margin indicate full marks. Answer any FIVE questions.

1. (a) Name the common diseases of poultry caused by Gram negative bacteria. Describe the pathogenesis and pathology of fowl typhoid. 6.0
   (b) Mention the post mortem findings of necrotic enteritis. 2.0

2. (a) Describe the pathogenesis and pathology of infectious bronchitis. 5.0
   (b) Write down the pathogenesis of avian influenza. 3.0

3. (a) Describe the pathogenesis and pathology of most common protozoan disease of young chicks. 6.0
   (b) Mention the pathognomonic lesions of histomoniasis in turkey. 2.0

4. (a) Why IBD is more common in young chicks? List the gross changes found during post mortem examination of chickens affected with IBD. 5.0
   (b) Write down the pathogenesis of Marek's disease in chickens. 3.0

5. (a)Why it is very difficult to control mycoplasmosis in poultry? Write down the pathogenesis of mycoplasmosis in a broiler flock. 6.0
   (b) Enlist the common postmortem findings of colibacillosis. 2.0

6. (a) Write down the pathogenesis and pathology of duck plague. 5.0
   (b) Write short note on vitamin E deficiency disorders in poultry. 3.0

Chattogram Veterinary and Animal Sciences University
Department of Pathology and Parasitology
MS in Pathology
July- December Semester Final Exam. 2023
Sub: General Pathology (Theory). Course code- GPT-602
Total Marks- 40, Time- 2 hours.

Figures in the right margin indicate full marks. Answer any FIVE questions.

1. (a) Describe the microscopic changes found in dead cells. 5.0
   (b) How will you detect rigormortis in a carcass? Differentiate necrosis from post-mortem autolysis in a tabular form. 3.0

2. (a) How exudates are produced during the process of inflammation? 2.0
   (b) Name the cells involved in the process of inflammation. Describe the role of macrophages in inflammation. 4.0
   (c) Write down the gross and microscopic lesions of fibrinous inflammation. 2.0

3. (a) What type of gangrene is most common in cattle in Bangladesh? Write down the gross and microscopic changes of moist gangrene. 4.0
   (b) Describe the causes and lesions of fatty change. 4.0

4. (a) Write down the mechanism of hemolytic and toxic jaundice. 4.0
   (b) Differentiate three types of jaundice in a tabular form. 2.0
   (c) What is photosensitization? Show its mechanism in sketch form. 2.0

5. (a) Describe the types of hemorrhage. How will you differentiate hemorrhage from hemorrhagic inflammation? 4.0
   (b) Mention the types of thrombi and emboli. Show the process of Nut-Meg liver in sketch form. 4.0

6. (a) Describe the microscopic lesion of anaplastic cells. How radiation can neoplasm? 4.0
   (b) Name ten developmental anomalies commonly found in animals. 2.0
   (c) Define and classify atrophy. 2.0

Chittagong Veterinary and Animal Sciences University
Faculty of Veterinary Medicine
MS in Pathology
July-December Semester Final Examination 2023
Course Title: Immunopathology, Course Code:IPT-602
Full marks: 40, Time: 2 hours

(Figures in the right margin indicate full marks. Answer any 5 questions from the following)

1. a) Compare and contrast humoral and cell mediated immunity? Write in brief about the role of cytokines of immunity. 4
   b. Write with schematic diagram the actions of humoral and cell mediated immunity. 4

2. a. Write in brief about complement and its action by a schematic presentation. 4
   b. Write a logically organized essay when mismatched blood types are transfused. 4

3. a. Write down the mechanism and effects on individual due to biting of bee stings. 3
   b. What is self-tolerance? Write a logically organized essay on "breaking of self-tolerance" which favor autoimmune diseases. 5

4. a. Write down the pathogenesis, pathology and laboratory diagnosis of systemic lupus erythematosus (SLE). 4
   b. Write in brief the mechanism, clinical findings, immunological findings and laboratory diagnosis of Grave's disease. 4

5. a. What is rheumatoid factor? 1
   b. Write in brief about transplant rejection and erythroblastosis fetalis. 3
   c. What do you mean by IDDM? Write in brief about IDDM as autoimmune disease. 4

6. a. Define immunodeficiency. Write in brief about "Bare leukocyte syndrome". 3
   b. How immunodeficiency diseases occurred by the defects in phagocytic system and B cell deficiency. 5

Chittagong Veterinary and Animal Sciences University
Department of Pathology and Parasitology
MS in Pathology
July-December Semester Final Examination 2023
Course title: Pathology of Extraneous Poisoning
Course code: PPT-602; Full marks: 40, Time: 2 hours

(Figures in the right margin indicate full marks. Answer any **5 questions** from the following)

1. a. Write down some sources of lead poisoning in domestic animals. 2
   b. Write down the mechanism of tissue changes in lead poisoning. 3
   c. Enlist some significant postmortem lesions of lead poisoning. 3

2. a. What is the source of gossypol poisoning? How ruminant prevents its absorption? Enlist some postmortem findings of this poisoning. 4
   b. What is the toxic constituent of grass pea? Describe neuro-lathyrism developed by grass pea poisoning. 4

3. a. Name the toxic constituents of oleander plant? Briefly describe the pathogenesis of this poisoning. 4
   b. Which poisoning mimics thiamine deficiency? Describe the signs developed by this poisoning. 4

4. a. Write down some common pesticides used in Bangladesh. 2
   b. What are the common lesions found in pesticide poisoning? 2
   c. Describe the pathogenesis of organochlorine compounds poisoning. 4

5. a. How anoxia develops in nitrite poisoning? 4
   b. Describe the pathogenesis of cyanide poisoning. 4

6. a. Write down the general steps in the diagnosis of poisonous diseases in animals? 3
   b. Write a short note on datura poisoning. 5