

Chattogram Veterinary and Animal Sciences University
Department of Pathology and Parasitology
Final Examination of Master of Science in Parasitology
Semester: July- December'2020
Course Title: Entomology
Course Code: EPR- 602

Time: 2 hours

Total marks: 40

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

1. You are working as a 'Lieutenant' at "Remount, Veterinary and Farms Corps (RVFC)" of the Bangladesh Army. Your current posting is in a military farm of Chittagong Cantonment. After taking over the charge of the dairy farm unit, you identified several problems that contribute the reduction of production. One of the major problems of the farm is the 'tick infestation'. You had a chat with your boss (who is 'Major') about the problem. How will you address/facilitate the following queries asked by your boss? 8
 - a. How does tick infestation reduce the productivity of the animals? [2]
 - b. What would be your strategies to control tick infestation in farm level and pasture lands? [4]
 - c. What are the chemicals available and how can you apply them to control tick infestation? [2]

2. You are working as MS research fellow at 'Teaching and Training Pet Hospital and Research Centre', Purbachol, Dhaka. You attended a patient (e.g. cat), went for physical examination and observed skin lesions with lots of fleas and lice on the body coat. No other abnormalities were recorded except alopecia, pale mucous membrane and poor body condition. One of the duty doctors came and asked the following questions before commencement of the treatment. 8
 - a. What is/are name of the condition(s) patient suffering from? [2]
 - b. What are the name of ecto-parasites involved with the lesions observed? [2]
 - c. Do these ecto-parasites act as the vectors of other diseases [2]
 - d. What are the features of the lice that can cause anemia in heavy infestation? [2]

3. You are working as a "Surveillance Officer" at "National Malaria Control Program (NMCP)" run by BRAC (Bangladesh Rural Advancement Committee). It is one of your responsibility to collect the mosquitoes' specimen from highly endemic areas (e.g. Chittagong Hill tracks and Cox's Bazar) and identify those in a laboratory. How will you response to the following questions to expand your comport zone during working in the project. 8
 - a. How will you identify and differentiate the mosquito vector that cause malaria with other genera available in Bangladesh? [4]
 - b. What is the rationale of using oil-based insecticide to kill larval stages of mosquitoes and what strategies can be adopted to control malaria in the mentioned regions? [4]

4. a. Write down the distribution of sandflies in Bangladesh. Mention the possible breeding sites of sandflies. 4
b. 'Brachyceran' are more efficient mechanical vector than 'Nematoceran'-Justify 4

5. Mention the vector importance of the followings: 1.6X5=8
 - a. *Aedes* mosquito
 - b. *Phlebotomus papatasi*
 - c. *Musca domestica*
 - d. *Culicoides* spp
 - e. *Simulium* spp

6. How do you morphologically identify the following species? 1.6X5=8
 - a. *Phlebotomus* spp
 - b. *Stomoxys calcitrans*
 - c. *Tabanus* spp
 - d. Tsetsefly
 - e. Blackfly

Chittagong Veterinary and Animal Sciences University
Department of Pathology and Parasitology
Final Examination of Masters of Science in Parasitology
Course title: Parasitic Ecology and Epidemiology (Theory)
Course code: PEE-602
Semester: July-December, 2020

Time : 2 hours

Marks : 40

Answer any **FOUR** questions from the following:
(All questions have equal marks)

4x10=40

1.
 - a. What do you mean by epidemic, endemic and pandemic outbreak? Give example.
 - b. What is bionomics? Briefly describe the factors influencing the vector bionomics
2.
 - a. Briefly describe the procedure to investigate possible enteric parasitic problem in a dairy herd
 - b. How human behavior influences the epidemiology of zoonotic diseases.
3.
 - a. What do you mean by faunistic study of parasite? Give example.
 - b. Mentions the bionomics of *Haemonchus* and *Eimeria*.
4.
 - a. Define sampling. Classify different sampling methods in a population.
 - b. Define biotic and abiotic factors with example. Briefly describe the effect of these two factors on the infection biology of parasite.
5.
 - a. Define parasitic drug resistance with example
 - b. Write down the guidelines for controlling drug resistance present in a herd
6. Write short notes on (any two):-
 - a. Outbreak investigation
 - b. Helminth vaccine and Biological control
 - c. Host-vector-parasite relationship

Chattogram Veterinary and Animal Sciences University
Department of Pathology and Parasitology
Final Examination of Master of Science in Parasitology
Semester: July- December'2020
Course Title: Protozoology (Theory)
Course Code: PRT - 602

Time: 2 hours

Total marks: 40

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

1. a). Illustrate the different locomotion and reproduction processes of protozoa with examples. 4
- b). Enlisted the protozoa that cause abortion in cow. How will you manage a bull and cow infected with *Tritrichomonas foetus*. 4
2. a). Mention the haemoprotozoa of ruminants. Briefly describe the morphology and life cycle of *Theileria parva* in bull. 4
- b). How will you diagnose the following diseases or infections ? (Any two) 2x2=4
 i). Cryptosporidiosis ii) Anaplasmosis iii) Toxoplasmosis
3. a). Enumerate the species those which causes babesiosis in cattle, horse, goat, dog and pig. Briefly describe the morphology and life cycle of bovine babesiosis. 4
- b). Illustrate the epidemiological factors and the pathogenesis of babesiosis in cow. 4
4. a). Give the different morphological characters of the Oocyst of the protozoa belonging to genera *Eimeria*, *Isospora* and *Cryptosporidium*. 3
- b). Write down the risk factors and pathogenic significance of the following diseases any two (2): i) Rabbit coccidiosis ii) Black head disease in turkey iii) Surra in mare 2.5X2=5
5. a). Define the following term (anythree) (3): i) Enzootic stability ii) Premunity 4
 iii) Self-limiting disease and iv) Shuttle programme
- b). Mention the sources and mode of transmission of Trypanosomiasis in animals? 4
 Illustrate the developmental stages of Trypanosomes. "It is difficult to produce vaccine against trypanosomes"- Explain.
6. a). Give the list of protozoa which causes diarrhoea in calves. How are you control the zoonotic protozoal diseases in calves? 4
- b). Illustrate the different form of leishmaniasis in fox. Write down the short note on canine ehrlichiosis. 4

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, 2020

Time: 2 hours

Marks : 40

Answer any **FOUR** questions from the following:
(All questions have equal marks)

4x10=40

1. a. What is central dogma? Discuss gene expression and regulation in parasites with example.
b. Briefly describe replication and transcription with graphical example?
2. a. Mention the different methods of gene sequencing. Illustrate the feature of Apicomplexan parasite genomes
b. What do you mean genome wide analysis? Briefly describe it.
3. a. What is primer? Describe the important criteria in designing PCR primers
b. Briefly discuss the principles of PCR. Explain different modifications of PCR assay.
4. a. Mention the extraction and purification process of DNA. How will you proceed with whole genome sequencing of parasites?
b. What is restriction enzyme? Mention their uses with example.
5. a. What is ORF, Exon, gene promoter and RNA splicing?
b. What types of antigenic variation occurs in *Leishmania*? Briefly describe.
6. Write short notes on (any two):-
 - a. RFLP
 - b. Protein tertiary structure
 - c. Real time PCR

Chattogram Veterinary and Animal Sciences University
Department of Pathology and Parasitology
Final Examination of Master of Science in Parasitology
Semester: July- December'2020
Course Title: Zoonotic Parasites (Theory)
Course Code: ZPR - 602

Time: 2 hours

Total marks: 40

Answer any **four questions** where number **1 is compulsory**. Figures in the right margin indicate the full marks.

1. a). Define and classify zoonoses? Enlist the zoonotic parasites of wild animals. It is a challenge to control parasitic zoonoses in the world'-how can you explain it? 6
- b). Illustrate the drivers which are responsible for increasing the chance of zoonotic diseases in the world. 4
2. a). Mention the public health significance of Leishmaniosis and Trypanosomiosis. 4
- b). How will you diagnose the following diseases or infections ? (Any three) 2x3=6
- i). Cryptosporidiosis ii) Trichinellosis iii) Opisthorcosis iv) Schistomiasis
3. a). Illustrate the morphology, life cycle, pathogenesis and pathology of *Echinococcus granulosus*. 5
- b). Enumerate the parasites which cause infection through penetration of skin. Briefly describe the zoonotic Ancylostomiosis. 5
4. a). How does *Diphyllobothrium latum* cause pernicious anaemia? Mention the transmission pattern and life cycle of *Trichinella spiralis*. 5
- b). Write down the pathogenic significance of the following diseases: 2X2.5=5
- i) Kala-azar ii) Sarcocystis
5. a). Write short note on swimmer itch and cutaneous larval migrans. 5
- b). Sketch the life cycle of *Toxoplasma gondii*. Mention the clinical signs of Toxoplasmosis in sheep, dog and human. How will you diagnose such protozoal infection? 5