

Chattogram Veterinary and Animal Sciences University

MS in Microbiology

January-June Semester, 2019

**Advanced General Virology**

**Course code: AGV-601**

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

(Figures in the margin indicate full marks. Answer any four questions)

1	Explain replication process of + sense virus	10
2	Compose of antiviral drugs and their mechanism of action	10
3	Explain scope of virology and mention the uniqueness of virus	10
4	Explain viral immunity and apoptosis process	10
5	Discuss about interferon	10

**Chattogram Veterinary and Animal Sciences University**

**MS in Microbiology**

**January-June Semester, 2019**

**Subject: Industrial Microbiology, Course code: IMS-601**

**Total Marks: 40; Time: 2 hours**

**(Figures in the margin indicate full marks. Answer any four questions)**

- 1 a) You are appointed as a microbiologist in a dye industry. The fermentation media that you have designed is complicated with excessive foam production. How you solve this problem? 5
- b) Justify the statement “fermented dairy products have both beneficial and therapeutic importance”. 5
- 2 Mention at least five organisms for each discipline with their commercial applications in industry: 10
  - I. Antibiotic production
  - II. Enzyme production
  - III. Vitamins and flavor production
  - IV. Fermented product production
- 3 An industrialist needs 500 gallon capacity fermentor for the production of vinegar. As a microbiologist, how will you design and what are the considerations you should take during construction of fermentor? 10
- 4 a) Define biohazard and biosafety. 2
- b) Suppose you are going to work with anthrax organism. Which biosafety level do you need? Describe its infrastructure facilities. 5
- c) Make an outline for purification of industrial effluent. 3
- 5 Short note:
  - I. Beer and wine fermentation 5
  - II. Patent for scientific discovery 5

**Chattogram Veterinary and Animal Sciences University**  
**MS in Microbiology Final Examination**  
**January - June Semester, 2019**  
**Course Title: Mycology and Microbiology of Atypical Bacteria**  
**Course Code: MMA 601**  
**Total Marks: 40      Time: 2 hours**

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

1. a) Explain the mechanisms involved in fungal diseases. Describe different phases of the sexual reproduction process in fungi. 3+3  
b) Give a brief summary of the methods employed for the direct microscopic examination of fungi. 4
2. a) Write down the virulence attributes of pathogenic *Microsporum* species. State the microscopic appearance of the macroconidia for the dermatophytes commonly affecting animals. 4+2  
b) How will you diagnose *Candida albicans* from clinical samples? 4
3. a) Identify the key features of *Aspergillus fumigatus* and *Rhinosporidium seeberi*. Summarize the characteristics for the presumptive identification of *Cryptococcus neoformans*. 2+3  
b) Illustrate the mould and yeast forms of *Blastomyces dermatitidis* and *Histoplasma capsulatum*. 5
4. a) List the zygomycoses of domestic animals. Classify members of the *Rickettsiales* of veterinary importance and the cell types which they target. 2+3  
b) Explain different phases of the chlamydial life cycle. 5
5. a) Enumerate the most important species of mycoplasmas and the diseases that they cause in cattle and poultry. How will you differentiate between three mycoplasmal genera of veterinary importance? 2+3  
b) Give an overview of laboratory diagnostic procedures of chlamydial infections. 5

Chittagong Veterinary and Animal Sciences University

MS in Microbiology Final Examination

January – June Semester, 2019

Course title: Advanced General Bacteriology

Course Code: AGB-601

Full marks: 40; Time: 2 hours

**Answer any 4 (FOUR) questions.**

1. How do photosynthetic bacteria differ from Cyanobacteria? Write down the chemical composition of Gram negative bacterial cell wall. How do bacteria get nutrients from their growing environment? 10
2. Compare the structural and compositional variations seen among flagella and pili? Calculate the numbers of ATP and reduced hydrogen carrier molecules produced in bacteria from a molecule of glucose by Embden-Meyerhoff-Parnas pathway coupled with TCA cycle. What are the major proteins found in electron transport system of bacteria? 10
3. With their functions make a list of enzymes involved in DNA replication of bacteria? Is it possible for RNA to form a double strand structure by folding back upon itself or with DNA? What are the roles played by different parts of tRNA molecule during protein synthesis in bacteria? 10
4. Does spontaneous mutation happen in bacteria? How does radiation cause mutation in bacteria? Do all the categories of bacteriophages replicate in the same way in the hosts they infect? 10
5. Differentiate synchronous from non-synchronous growth of bacteria? How do psychrophilic bacteria survive in extremely cold environments? Why obligate aerobic bacteria cannot survive in the presence of oxygen? 10

**Chittagong Veterinary and Animal Sciences University**  
**Department of Microbiology and Veterinary Public Health**  
**MS in Microbiology, Semester: Jan-Jun'19, Final examination**  
**Course Title: Food Microbiology, Course code: FMB-601**  
**Total Marks: 40, Time: 02 hours**

Answer any four questions from the following. The figures in the right margin indicate full marks.

- |     |    |  |       |
|-----|----|--|-------|
| 01. | a) | What is food microbiology? Prepare a time line of the food legislations prevailed in our country.  | 1+2   |
|     | b) | Enumerate different color changes in spoiled milk.   | 2     |
|     | c) | What is Poising Capacity? Explain the effect of $E_h$ and $a_w$ on growth of microorganisms in food.   | 1+4   |
| 02. | a) | Define the following terms:<br>Luncheon meat, Z-value, Hops, Dehydrofreezing   | 2     |
|     | b) | Describe the spoilage of meat in absence of oxygen.  | 2     |
|     | c) | Differentiate the following terms:<br>i. Food borne infection and Food borne intoxication<br>ii. Drip and Leakage<br>iii. $CCP^1$ and $CCP^2$  | 3 x 2 |
| 03. | a) | Classify common wines.   | 2     |
|     | b) | Sketch the preservation procedure for green peas that will make them available in off-season.  | 3     |
|     | c) | Enumerate the underlying mechanism of preservative action of smoking of different food products.   | 3     |
|     | d) | Enlist some causal agents of microbial spoilages of fruits and vegetables.   | 2     |
| 04. | a) | What is food borne disease? Make a list of food borne diseases caused by different types of microorganisms with their incubation period, duration of illness, clinical signs and source. | 1+4   |
|     | b) | Define food borne disease outbreak. Design a guideline for investigating an outbreak of Botulism.  | 1+4   |
| 05. | a) | What is Food Control? Prepare a list of some national and international food control Agencies.   | 1+2   |
|     | b) | Make a list of factors that help eggs to be shelf stable for a limited period.   | 1     |
|     | b) | Write short notes on:<br>i. Aflatoxin Poisoning<br>ii. SCP   | 2 x 3 |

Chittagong Veterinary and Animal Sciences University

Department of Medicine and Surgery

**MS in Epidemiology January-June Semester Final Examination, 2019**

**Course Title and Code: Research Methodology (REM: 2+0) (Theory)**

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

**[Answer all questions and right margin indicates full marks]**

**Problem 1:** A local veterinarian found an unusual case of calf in a dairy farm in Lohagara with high temperature, anuria, shivering, reluctant to move and off-feed for the last 2 days, but the calf died in the following day. *In this circumstance,*

**Q1.1.** What kind of epidemiological investigation will you conduct? Describe your chosen study and find the differences from other epidemiological studies you have learned during the semester? **(Points 5)**

**Problem 2:** A series of mortality cases were noticed on migratory birds in Tanguar Hoar (Sunamganj) during the past week in February 2018. The department of wildlife and the livestock services jointly requested CVASU epi team to investigate the event and submit a report.

**Q2.1.** How will you proceed on for an epi investigation? What kind of study will you conduct without considering healthy migratory birds? Write down the advantages and disadvantages of your chosen study from the other commonly available epidemiological studies? **(Points 5)**

**Problem 3:** Feline panleukopenia is a highly contagious, often fatal viral disease, affecting domestic and wild felids. The prevalence of FPL in Bangladesh is 7.5% in cats. The disease is clinically manifested by severe depression, vomiting, dehydration, enteritis and diarrhea. The highest morbidity and mortality occurs in kittens up to 12 months of age. Mortality is 25–90% in acute panleukopenia and up to 100% in peracute infections. A marked decrease in circulating white blood cells has been recorded. **CVASU Dhaka Pet Hospital has an excellent paper-based recording system and the Director of the hospital wants to explore potential factors associated with the occurrence of FPL to offer better management services along with the treatment of FPL clinical cases to the clients.**

**Q3.1.** What would be the suitable epidemiological study design in this request? And why? **(Points 2)**

**Q3.2.** Describe your chosen study design in a schematic diagram? **(Points 8)**

**Q3.3.** State the sampling schemes you will apply in your chosen study and write down the potential reasons for those schemes. **(Points 5)**

**Q3.4.** Enlist potential biases in the chosen study design and how you will deal with those. **(Points 5)**

**Q3.5.** Show the analytical plan of the data set obtained through your chosen study. **(Points 5)**

**Problem 4:** Assess and interpret the outputs in the table below

Example	Crude risk ratio	Risk ratio (Stratum1)	Risk ratio (Stratum 2)	Adjusted risk ratio	Interpret the results (Q4.1) (Points 5)
Ex-1	3.0	3.0	3.0	3.0	
Ex-2	3.0	2.0	2.0	2.0	
Ex-3	3.0	0.8	5.5	-	

Chattogram Veterinary and Animal Sciences University

MS in Medicine

January-June Semester-2019

Subject: Zoonotic Medicine (ZOM-601), Total marks: 40, Time-2 (two) hours

(Figure in the right margin indicates full marks. Answer any **FIVE** questions)

- 01 a. Define zoonoses and veterinary public health. Briefly describe role of veterinary public health in zoonotic control. 4.0
- 02 a. What is bioterrorism? Briefly describe causal agent, mode of transmission and risk factors of important bioterrorism disease risk to the public and national security. 4.0
- 02 a. What is reservoir? Briefly explain the global reservoir of rabies. 4.0
- 02 b. What are the best ways to prevent the rabies in existing veterinary public health system of Bangladesh? 4.0
- 03 a. Write down the zoonotic significance of following diseases. 4.0  
i. Salmonellosis ii. Leptospirosis iii. FMD and iv. Brucellosis
- 04 a. Which campylobacter species are the leading causes of human diarrhea? Briefly discuss the clinical signs, diagnosis and treatment procedures of campylobacter infection in animal and human. 4.0
- 04 a. What do you mean by emerging and re-emerging disease? Make a list of emerging and re-emerging diseases with zoonotic significance. 4.0
- 04 b. What are the three most common species of mycobacterium? Briefly explain XDR and MDR TB. 4.0
- 05 a. List important protozoal and fungal zoonoses with their causal agent. 3.0
- 05 b. Describe the mode of transmission, clinical signs and diagnostic procedures of AI in human and animal. 5.0
- 06 Write short notes on 2x4=8
- a. Parasitic zoonoses
- b. Food born zoonoses

"GOOD LUCK"

**Chattogram Veterinary and Animal Sciences University**  
**Faculty of Veterinary Medicine**  
**Department of Medicine and Surgery**  
**MS in Medicine**  
**Semester: January-June 2019**  
**Subject- Avian Medicine**  
**Course code: AVM-601**  
**Total marks – 40**  
**Time – 2 (Two) hours**

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

1. (a) Differentiate between Infectious bronchitis and Infectious laryngotracheitis. **04**  
(b) Explain Cannibalism. Describe the form of Gout predominant in chickens. **02+04= 06**
2. Write down the etiology, clinical signs, postmortem lesions, treatment, prevention and control of Duck plague. **10**
3. (a) Differentiate between Ulcerative enteritis and Necrotic enteritis. **04**  
(b) Write down the postmortem lesions of Infectious bursal disease, Brooder pneumonia and Chicken infectious anemia. **06**
4. Write down the etiology, clinical signs, postmortem lesions, treatment, prevention and control of Newcastle disease in chickens. **10**
5. (a) Write down the clinical signs of EDS76, Fowl cholera and Avian influenza. **06**  
(b) Name four granulomatous/nodular diseases in poultry. Write down the line of treatment of Fowl typhoid and Mycoplasma-colibacillosis complex. **01+03= 04**
6. Write short notes on Mycotoxicosis and Ascites in chickens. **10**



**Chattogram Veterinary and Animal Sciences University**  
**Faculty of Veterinary Medicine**  
**Department of Medicine and Surgery**  
**MS in Medicine**  
**Semester: January – June' 2019**  
**Subject: Production Diseases of Dairy Animals**  
**Course Code: PDD 601, Credit: 02**  
**Total Marks: 40**  
**Time: 02 (Two) Hours**

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

1. Describe the etiology, risk factors, clinical signs, diagnosis, treatment, prevention and control of Milk Fever in cows. **10**
2. Write down the etiology, risk factors, clinical signs, diagnosis, treatment and control of Transport Tetany in ewes. **10**
3. Describe the etiology, clinical signs, diagnosis, treatment, prevention and control of Lactation Tetany in mares. **10**
4. Define Fatty Liver Disease in cattle. Describe the etiology, clinical findings, lesions, treatment, prevention and control of Fatty Liver Disease in dairy cows. **01+09= 10**
5. Describe the synonyms, etiology, clinical findings, lesions, diagnosis, treatment, prevention and control of Pregnancy Toxemia in ewes under field condition. **10**
6. Write down the etiology, risk factors, clinical signs, diagnosis, treatment and control of Sub – clinical mastitis in does. **10**

- GOOD LUCK -

Chattogram Veterinary and Animal Sciences University

MS in Medicine

January-June Semester-2019

Subject: Food Animal Medicine (FAM-601), Total marks: 40, Time-2 (two) hours

(Figure in the right margin indicates full marks. Answer any **FIVE** questions)

01	a.	Define food animal medicine. List five important diseases of each species of food animal commonly found in Bangladesh with their causal agent and brief epidemiology.	4.0
	b.	List gastrointestinal nematodes of food animal. Briefly describe the clinical findings, diagnosis and treatment of ascariasis in buffalo calves.	4.0
02	a.	What are the common viral diseases of sheep and goat? Briefly describe the treatment protocol against viral diseases usually followed in SAQTVH with justification.	4.0
	b.	What would be the line of treatment and prognosis of following diseases? Suggest drugs with their generic doses and trade name. i. Anaplasmosis in sheep ii. FMD in cattle	4.0
03	a.	What causing abortions in food animal? Briefly describe the clinical manifestations, diagnosis and treatment of brucellosis in cattle.	4.0
	b.	List causes of neonatal gastroenteritis in ruminant? How will you differentiate them clinically? Make a protocol for the treatment of calf diarrhea.	4.0
04	a.	Make a list of anthelmintics found in Bangladesh with their doses and rout of administration.	3.0
	b.	Define mastitis. Briefly describe the steps of control program of mastitis in large dairy farm of Bangladesh.	5.0
05	a.	What are the common causes of lameness in cattle? Enumerate the etiology, clinical signs. diagnosis and treatment of foot rot in cattle.	4.0
	b.	Name the vaccines with their schedules, doses, routes and duration of interval practiced in cattle of Bangladesh.	4.0
06		Write short notes on (any two) (a) Ephemeral fever in cattle (b) PPR in goat (c) Dermatophytosis in cattle	4x2=8

M.S. in Surgery; January-June Semester-2019

Subject: **Large Animal Surgery (Theory)**

Course code: LAS 601

**Total Marks: 40**

**Time: 2 (two) hours**

Department of Medicine and Surgery

Faculty of Veterinary Medicine

Chittagong Veterinary and Animal Sciences University

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

1. (a) What is the ideal time for dehorning in dairy calves? Mention the procedures of dehorning in calves? 04
- (b) Briefly describe the different stages of wound healing in surgery. 04
- (c) What are the common factors that affect wound healing process in animal? 02
2. (a) Do cows have a complete mediastinum? Of what significance of this when a pericardiotomy is performed? 03
- (b) Why is jugular distention a common clinical sign associated with traumatic pericarditis? What other diseases may be listed in a differential diagnosis associated with jugular distention? 04
- (c) When would one consider pericardial effusion drainage simply by paracentesis? List some advantages and disadvantages of paracentesis. 03
3. (a) Under what circumstances would you consider performing a rumenotomy for treatment of oesophageal obstruction? 02
- (b) How should the placenta be handled after a caesarean section? Why is starting the suture line at the caudal aspect of the uterine incision recommended? 03
- (c) Describe the various techniques of intestinal anastomosis used in veterinary surgery. 05
4. (a) Why might you hesitate to cast a patient with marked abdominal tympany for surgery? Why is such a patient not a good prospect for general anesthesia? 04
- (b) What are the common sites for coeliotomy? What are the merits and demerits of choice for midline incision in large animal during laparotomy? 03
- (c) What prime advantages does a caesarean section have over a fetotomy? 03
5. Write short notes on *any two* of the followings- 2x5=10
  - (a) Urolithiasis correction in a calf
  - (b) Upward fixation of patella in cattle
  - (c) External fixation for large animals
  - (d) Correction of teat fistula in a dairy cow

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Veterinary Medicine**  
**Department of Medicine and Surgery**  
**M. S. in Surgery, Semester: January-June, 2019**  
**Subject: Orthopaedic Surgery**  
**Course Code: ORS 601; Credit: 2**  
**Total Marks: 40**  
**Time: 2 (Two) Hours**

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

1. A dog suffering from lameness both forelimb and hindlimb. Write down the detail orthopaedic examination procedure in dog. 10.0
2. Write down breed predisposition/incidence of patellar luxation in dog and cat. How will you diagnose a dog suffering from patellar luxation? Describe the different surgical techniques for correction of patellar luxation. 10,0
3. Describe the fracture healing process specially primary and secondary healing and different bone grafting techniques with their indications. 10
4. Describe the different surgical techniques for the correction of hip dislocation in dog and cat. What are the common methods used for tendon repair in cattle? 10.0
5. Write down in brief the common conventional or external coaptation and internal fixation techniques for long bone fracture management in a dog and cat. 10.0
6. Write short note on following conditions- Legg-Perthes disease, panosteitis, arthrodesis. 10.0

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Veterinary Medicine**  
**Department of Medicine and Surgery**  
**MS in Surgery, Semester: January-June, 2019**  
**Subject: Large Animal Anaesthesiology**  
**Course Code: LAA 601; Credit: 2**  
**Total Marks: 40**  
**Time: 2 (Two) Hours**

(Figures in the right margin indicate full marks. Answer any **FOUR** questions of the followings)

1. Mention different parts with their functions of inhalation anaesthetic machine. How will you introduce ET in animals? What are the advantages of ET in general anesthesia? What are the effects of isoflurane and sevoflurane anaesthesia in different body system? 10.0
2. Classify local anaesthetics with mode of action. Write down the patient preparation in large animal for general anaesthesia. What are the effects of local anaesthetic in intravenous injection? 10.0
3. Write down in detail the different application methods/ procedure of local anaesthetics in cattle and goat with common nerve block. 10.0
4. Describe the recording information during anaesthesia in case of dog. What are the advantages of muscle relaxant in veterinary profession? Classify muscle relaxants with mode of actions and reversal agents used for neuromuscular blockade. 10.0
5. Mention the possible postanaesthetic complications/ accidents during large animals surgery. Write down the prevention and treatment of such complications? What do you mean by cardiopulmonary arrest and resuscitation (CPR)? 10.0
6. Write short note on ventilation in small and large animal anaesthesia. 10.0

**Department of Medicine & Surgery**  
**MS in Theriogenology**  
**Semester January-June, 2019**  
**Course Title: Advances in Andrology and Male Infertility**  
**Course Code: AMI-601 (Theory)**  
**Duration: 2 hour**  
**Total Mark: 40**

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

1. a. A 6 years old, 20 kg Doberman male dog came to Teaching and Training Pet Hospital, CVASU, Dhaka with history of swelling in scrotum, pain in palpation, local hyperthermia, reluctant to stand or walk, mucopurulent discharge with urine. Diagnose the case and prepare a prescription for it. 5
- b. Mention the objectives of preparing teaser bull. How will you prepare a teaser bull? 5
2. a. How will you differentiate paraphimosis from priapism? 3
- b. "Fertility of a bull is of paramount importance for any successful breeding programme" justify. 7
3. Write down short note on (any of two) (5×2)
  - i. Impotentia Coeundi and impotentia generandi
  - ii. Prostitis
  - iii. Anorchism and monorchism
4. a. Enlist the risk factors associated with testicular generation in a male. 5
- b. Briefly describe coital injuries and reproductive behavior of a male. 5
5. a. Enumerate the indications for testicular biopsy. How does testicular biopsy help in assisted reproductive technology? 8
- b. Enlist the diseases and disorder of male genital system 2

Chittagong Veterinary and Animal Sciences University  
Faculty of Veterinary Medicine  
Department of Medicine and Surgery  
MS in Medicine Final Examination' 2019  
Semester: January - June  
**Sub: Veterinary Dermatology**  
Course Code: VED-601

Total Marks: 40, Time: 2 hours

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

1. a. Write down the routine management of dog skin. 04  
b. Write down the ante-mortem and post-mortem importance of skin management. 04
2. a. What are the vitamins and minerals important for skin integrity? What are their vital functions on skin? 04  
b. How can you differentiate parakeratosis from folliculitis? 04
3. Differentiate: scabies from ring worm, foot rot from myiasis, caseous lymphadenitis from dermatophilosis, wart from tumour 08
4. a. What are the skin samples you will collect in parakeratosis, mange, ring worm and bumble foot? What tests will you do and what will be findings? 04  
b. How can you treat orf and pox in sheep? 04
5. a. Differentiate allergic dermatitis and photosensitisation. 04  
b. Write down the treatment of allergic dermatitis and photosensitisation in dog. 04
6. Write down treatment procedure for the following diseases: 4×02 = 08
  - a. Pododermatitis
  - b. Feline acne
  - c. Seborrhoea
  - d. Flea infestation
7. Write short notes (any two) on: 2×04 = 08
  - a. Rabbit syphilis
  - b. Demodecosis in a dog
  - c. Drug hypersensitivity
  - d. Lumpy wool in sheep