

Chattogram Veterinary and Animal Sciences University  
Department of Physiology, Biochemistry and Pharmacology

**MS in Physiology Final Examination 2020**

**Semester: July-December**

Course Title: Excretory Physiology and Acid-Base Balance (Theory)

Course Code: EPA-602

Total marks: 40, Time: 2 hours

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

- |   |    |   |   |
|---|----|---|---|
| 1 | a. | Briefly describe renin-angiotensin-aldosterone mechanism.                   | 3 |
|   | b. | Enumerate the normal and abnormal constituents of urine.                    | 4 |
|   | c. | What is the role of juxta-glomerular apparatus for urine formation?         | 3 |
| 2 | a. | What are the roles of surfactant in respiration?                            | 3 |
|   | b. | How does oxygen and carbon-di-oxide exchange by respiratory system?         | 3 |
|   | c. | How does respiratory system involved in excretory mechanism of animal body? | 3 |
|   | d. | Briefly describe about air sac of bird.                                     | 1 |
| 3 | a. | How does blood acidity and alkalinity increase?                             | 4 |
|   | b. | Briefly describe about control of acid base balance.                        | 4 |
|   | c. | Differentiate metabolic acidosis and respiratory acidosis.                  | 2 |
| 4 | a. | What are the complications of respiratory acidosis?                         | 2 |
|   | b. | What are the causes of metabolic acidosis?                                  | 3 |
|   | c. | What are the roles of kidney in acid-base balance?                          | 3 |
|   | d. | Describe about phosphate buffer.  | 2 |
| 5 | a. | Differentiate expiration and inspiration.                                   | 2 |
|   | b. | What are the nerves involved in respiratory mechanism of cattle?            | 3 |
|   | c. | How does respiration helps in homeostasis of animal?                        | 1 |
|   | d. | What are the excretory materials of animal body?                            | 4 |

Chattogram Veterinary and Animal Sciences University  
Department of Physiology, Biochemistry and Pharmacology  
**MS in Physiology Final Examination 2020**  
**Semester: July-December**  
Course Title: Integration Physiology (Theory)  
Course Code: IPH-602  
Total marks: 40, Time: 2 hours

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

1. a. What are the types of muscle contraction? Briefly discuss the contraction of smooth muscle in cattle. 4  
b. What is calcium pump? Write down the physiological properties of skeletal muscle. 3  
c. Write a short note on sliding filament theory of muscle contraction. 3
  
2. a. Write down the name, type and distribution of the cranial nerve 4  
b. Define synaptic fatigue. Diagrammatically show the synaptic transmission along the nerve fiber. 3  
c. Write down the properties and functions of synapse. 3
  
3. a. How taste signal is transmitted to the brain? Explain taste differentiation. 4  
b. Enlist the different layers of eye. Differentiate between rod and cone cells. 3  
c. Write down the refractive media of eye. 3
  
4. a. What is CSF? How does it form and circulate? 4  
b. How do neurons communicate? Write down the salient features of autonomic nervous system? 4  
c. How neurotransmitter is released from nerve endings? 2
  
5. a. What are the relationship between vision and vitamin A? 3  
b. What is organ of corti? Discuss the mechanism of hearing. 4  
c. How does skin regulate body temperature? 3

Chattogram Veterinary and Animal Sciences University  
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**MS in Physiology Final Examination 2020**

**Semester: July-December**

Course Title: Concepts of Animal Welfare (Theory)

Course Code: CAW-602

Total marks: 40, Time: 2 hours

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

1. a. Enlist the indicators of sustainable development goals (SDGs) that are related with livestock. Briefly discuss the relationship between animal welfare and SDGs. 3  
b. How do you assess welfare of farm animal based on 5 freedoms? Identify behavior indicator of good welfare. 3  
c. Why the veterinarian are responsible for better welfare of animal and how they will play the role? 4
2. a. What are the methods of dog population control? How will you euthanize a severely injured free-roaming dog? 4  
b. What is HARs? What points could be considered to monitor the welfare of dairy production system? 4  
c. Mention the ways by which animals express pain. 2
3. a. Why cattle are called sentient animals? Briefly discuss the concepts of animal welfare development in Bangladesh. 5  
b. What are the OIE guidelines of animal welfare? Discuss the guidelines for the transport of animals. 5
4. a. What are the methods of slaughter? Define euthanasia and emergency killing. 3  
b. What is 3 Rs? List major welfare issues in animal experimentation. 4  
c. What is the humane end point of laboratory animal? 1  
d. Enlist the principles of veterinary ethics. 2
5. a. What are the penalties for breaking the Animal Welfare Act-2019? 3  
b. Define ethics and legislation. Write down the obligatory ethical values to be practiced for a veterinary practitioner. 4  
c. Briefly discuss the common unethical practices of vet students and veterinarians, and solution to encourage ethical practices. 3

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**MS in Physiology Final Examination 2020**

**Semester: July-December**

Course Title: Wild Life Physiology(Theory)

Course Code: WPH-602

Total marks: 40, Time: 2 hours

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

- 1 a. What software can be used to map hotspots for the conservation of wildlife species in a location? 3
- b. What are the various application of machine learning and Artificial intelligence in studying wildlife and it's habitat? 4
- c. What should we do to keep Marshland alive? 3
- 2 a. Can the potential for rapid evolution in physiological tolerance of threatened taxa be maximized? 3
- b. What physiological mechanisms determine the pace of thermal acclimation and adaptation? 3
- c. How can conservation physiology enhance action on Sustainable Development Goals (SDGs) and contribute towards a net zero carbon economy? 3
- d. What are the physiological responses of animals to heavy metals and other environmental toxicants? 1
- 3 a. Briefly describe metabolism, circulation and respiration of blue whale. 4
- b. Enumerate the vision mechanism of reptiles. 4
- c. How will you differentiate between ectothermic and endothermic animals? 2
- 4 a. Briefly describe the behaviour of kangaroo. 2
- b. How does polar bear adapt themselves in cold environment? 3
- c. Enumerate the maternal behaviour of tiger. 3
- d. Briefly describe about social behaviour of pigeon. 2
- 5 a. How does giraffe digest herbs in its stomach? 2
- b. Briefly describe about panting mechanism during extreme hot weather. 3
- c. What are the physiological adaptations of penguin in extreme cold? 1
- d. How will you track a wild bird for wild life research? 4

July-December MS in Pharmacology Examination-2020  
Department of Physiology, Biochemistry and Pharmacology  
Course Title: Chemotherapy of Parasitic Disease (Theory)  
Course Code: CPD-602  
Total Marks: 40; Allocated Time: 2.00 Hours

Figures in the right margin indicates the full marks. Answer any five (5) questions from the followings.

1. Write down the characteristics of an ideal anthelmintic. Write down the mode of action, dose, indication and contraindications of albendazole and piperazine citrate in poultry. 8.0
2. Enlist the anthelmintic act against ecto-parasites. Write down the mode of action, dose and indication of Nitroxinil and Ivermectin in pet animals. 8.0
3. Briefly describe the pharmacokinetics, mode of action, dose, indication and contraindications of livemisole in cattle. 8.0
4. Enlist antinematoda and anticestodal drugs with their doses. 8.0
5. Write down the mode of action, dose, indication, contraindication, adverse effect of Diminazene aceturate 8.0
6. Enlist the antiprotozoal drugs. Write down the mode of action, dose, indication, contraindication, adverse effect of Imidocarb 8.0

July-December MS in Pharmacology Examination-2020  
Department of Physiology, Biochemistry and Pharmacology  
Course Title: Systemic Pharmacology (Theory)  
Course Code: SPH-602  
Total Marks: 40; Allocated Time: 2.00 Hours

Figures in the right margin indicates the full marks. Answer any five (5) questions from the followings.

1. Define and classify intestinal stimulants with examples. How will you differentiate between laxative and purgative? Write down the mode of action and indications of vegetable oil in cattle. 8.0
2. Classify expectorant with examples. Write down the mode of action, dose, indication and contraindication of salbutamol. 8.0
3. Differentiate between heart tonic and heart stimulants. Write down the mode of action, dose, indications and contraindications of digitalis in dog. 8.0
4. Define anesthesia and euthanasia. Write down the characteristics of ideal anesthetics. Differentiate local anesthetics from general anesthetics. 8.0
5. Define and classify diuretics with examples. Write down the clinical application of urinary acidifier and urinary alkalizer. 8.0
6. Write short notes on:  
a. Carminatives and antizymotics drugs 8.0  
b. Bronchodilator and antitussive drugs

Chattogram Veterinary and Animal Sciences University  
Department of Physiology, Biochemistry and Pharmacology  
Ms in Pharmacology July-December Semester Final Examination-2020  
Sub: **Toxicology of Drugs and Chemical Residues (T)**: Sub Code: TCD-602  
Total Marks: 40

Answer any **8** questions from the below list: Figure in the right margin indicate full marks

1. Describe the legislation regarding veterinary drug residue in food stuff of animal origin 5
2. Demonstrate the contamination process of animal derived food stuff by pesticide 5
3. Describe the impact of drug in developing embryo 5
4. Describe the monitoring and detection process of drug residue in animal bodies 5
5. Define (Any five) : Toxin, Chemicals, Residue, Tolerance, Allergen, Hypersensitivity 5
6. Describe the Veterinary toxicological chemicals and its available antidote 5
7. Describe the improved technology to measure the toxic level of different drugs in human food stuff from agriculture origin 5
8. Enumerate the importance of drugs withdrawal and tolerance level in veterinary medicine 5
9. Demonstrate the residues of drugs and chemicals of veterinary importance in edible tissue 5
10. How a Veterinarian being involved in monitoring toxicological cases in Upazilla Veterinary Hospital (UVH) 5

July-December MS in Pharmacology Examination-2020  
Department of Physiology, Biochemistry and Pharmacology  
Course Title: Toxicology of Pesticides (Theory)  
Course Code: TOP-602  
Total Marks: 40; Allocated Time: 2.00 Hours

Figures in the right margin indicates the full marks. Answer any five (5) questions from the followings.

1. Define and classify pesticides with examples. How will you differential Organophosphorus from Organocarbamate poisoning? 8.0
2. What are the factors affecting Organochlorine poisoning? Write down the diagnosis and line of treatment of Organochlorine poisoning in livestock. 8.0
3. Briefly describe the mode of action, diagnosis and line of treatment of ANTU poisoning in rodents. 8.0
4. Write down the toxicokinetics, mode action and line of treatment of Organophosphorus poisoning cattle. 8.0
5. Briefly describe the clinical sign, and diagnosis and line of treatment of Warfarin poisoning. 8.0
6. Write short notes on: a. Fumigants 8.0  
b. Fungicides



**Chattogram Veterinary and Animal Sciences University**  
**Department of Physiology, Biochemistry and Pharmacology**  
**MS in Biochemistry, July-December Semester, Final Examination-2020**  
**Course Title: Veterinary Biochemistry**  
**Course Code: VEB-602**  
**Full marks: 40; Time: 2 hours**

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

1. a. Briefly describe the process of organization of eukaryotic DNA in the form of Chromatin and Chromosomes. 5  
b. Describe the enzymes that are use in dairy industry. 5
2. a. Briefly describe the digestion process in ruminant and non-ruminant. 5  
b. Describe the metabolic transformation of Glycine and Tyrosine. 5
3. a. Define Denaturation. Describe the physical and chemical agents of denaturation with their specific cleavage site in protein. 5  
b. Draw the structure of mitochondrion depicting electron transport chain. Briefly describe the components of electron transport chain. 5
4. a. Briefly describe the chemiosmotic hypothesis for oxidative phosphorylation. 5  
b. Enlist the end product of carbohydrate digestion. How acetate and propionate will give energy in ruminant? 5
5. a. Briefly describe the utilization of non protein compound by the rumen. 5  
b. Calculate the total number of ATP after complete oxidation of one mole glucose in our body. 5

Chattogram Veterinary and Animal Sciences University  
Department of Physiology, Biochemistry and Pharmacology  
Ms in Biochemistry July-December Semester Final Examination-2020  
Sub: **Recombinant DNA Technology (T)**: Sub Code: RDT-602  
Total Marks: 40

Answer any **8** questions from the below list: Figure in the right margin indicate full marks

1. Describe the steps of recombinant DNA technology 5
2. Demonstrate the importance of rDNA technology to improve the life standard 5
3. Briefly describe the economic importance of recombinant DNA technology 5
4. Describe the DNA cloning by utilising the plasmid as a vector 5
5. Define : cloning, western blotting, forensic investigation, gene libraries, hybridization 5
6. Describe the safety protocol maintained during recombination 5
7. Describe the stages of meiosis cell division 5
8. Differentiate between chromosomal analysis and chromosomal micro-array 5
9. Describe the properties of a good vector 5
10. Describe the application of gene cloning and its disadvantages. 5

**Chattogram Veterinary and Animal Sciences University**  
**Department of Physiology, Biochemistry and Pharmacology**  
**MS in Biochemistry, July-December Semester, Final Examination-2020**  
**Course Title: Animal Hormone**  
**Course Code: ANH-602**  
**Full marks: 40; Time: 2 hours**

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

1. a. What is growth hormone? Describe the biomedical importance of growth hormone in body. 5  
b. Briefly describe the regulation of aldosterone secretion by zona glomerulosa of adrenal cortex. 5
2. a. What is master gland in our body? Draw the hormonal heirarchy relationships between hypothalamus and pituitary with others endocrine glands. 5  
b. Briefly describe the synthesis' process of oxytocin and vassopressin. Give the details effect of oxytocin on uterus and mammary gland. 5
3. a. Describe the subcellular mechanism of action of lipophilic and hydrophilic hormone. 5  
b. What is pheromone? Briefly describe its biological importance's in animal. 5
4. a. Briefly describe the cyclooxygenase and lipoxygenase pathway. 5  
b. "Vitamin-D act as a hormone"- justify this statement. Briefly describe the effect of vitamin-D in calcium homeostasis. 5
5. a. Describe the function of gastrointestinal hormone in our body. 5  
b. Briefly discuss the effect of epinephrine and nor-epinephrine in different part of our body. 5

Masters in "Biochemistry" Final Examination' 2020

Semester: July- December

**Subject: Biochemical Molecular and Immuno-diagnostics (Theory)**

Course Code: BMI-602; Credit: 2

**Department of Physiology, Biochemistry and Pharmacology**

Chattogram Veterinary and Animal Sciences University

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

Figures in the right margin indicate full marks. Answer **any eight (8)** of the following questions.

1. a. Enumerate the critical factors involved in collecting a valid specimen for analysis in the clinical laboratory. 2.5  
b. Differentiate between pre-analytical error and post analytical error. 2.5
2. a. Write down the name of biological specimens that are analyzed in clinical laboratory. What is the meaning of CLSI? 2+0.5=2.5  
b. Enumerate the factors interfering with the results considering both patient and technical consideration. 2.5
3. a. Define hepatitis. How many types of hepatitis virus? Mention the sources of different sources of hepatitis viral infection. 1+1+1=3  
b. Write down the indication of any two of the following antigen detection during Hepatitis B-virus (HBV) diagnosis. 1×2=2
  - i. HBsAg
  - ii. HBcAg
  - iii. HBeAg
4. Draw and label structure of an Immunoglobulin. Compare and contrast among 5 different types of Immunoglobulin. 1+4=5
5. Write down the biosynthesis of major adrenocorticosteroid. 5
6. Define PCR. Briefly describe the process of a qualitative PCR with example. 1+4=5
7. Define HLA typing. Differentiate between PCR-SSP vs PCR-SSOP. 1+4=5
8. Write down the structure of cyanocobalamin. What is the major cause of vitamin B<sub>12</sub> deficiency in human that lead to pernicious anemia? Briefly describe the molecular mechanism of pernicious anemia. 1+1+3=5
9. Briefly describe the DNA finger printing process for personal identification and paternity dispute. 5
10. Define immunoassay. Write down the principle of the following immunoassays. 1+4=5
  - i. ELISA
  - ii. RIA
  - iii. Immunoturbidometry
  - iv. Microtitre-hemagglutination
  - v. Flow cytometry

Chattogram Veterinary and Animal Sciences University  
Department of Physiology, Biochemistry and Pharmacology  
Ms in Biochemistry July-December Semester Final Examination-2020  
Sub: **Bioenergetics** (T): Sub Code: BIE-602  
Total Marks: 40

Answer any **8** questions from the below list: Figure in the right margin indicate full marks

1. Describe the high energy compounds involved in metabolism 5
2. Demonstrate the process of electron carriers in oxidative phosphorylation 5
3. Describe the process of free energy concept in biochemistry 5
4. Differentiate between endergonic exergonic reaction 5
5. Define : Symport, enthalpy, entropy, ATP-ADP cycle, redox potential 5
6. Describe the inhibitors of electron transport cycle (ETC) in sketch form 5
7. Describe the Proton pump mediated transport system in biological system 5
8. Enumerate the biological importance of active transport 5
9. Demonstrate the process of intracellular transport of  $\text{Ca}^{++}$  in animal cell 5
10. Differentiate between endocytosis and exocytosis 5

**Chattogram Veterinary and Animal Sciences University**

Department of Physiology, Biochemistry & Pharmacology

MS (Pharmacology)

Final Examination-2020

July-December Semester

Sub: Endocrinology and Nutritional Pharmacology (ENP-602)

Total Marks: 40

Time: 2 hours

**Answer the following questions (any four).**

**4 x 10 = 40**

1. a). Differentiate endocrinology with endocrine pharmacology. What is “Neuro-endocrine complex”.  
b) Define Hirsutism. How you handle a case of Hirsutism patient?
2. a). Define Insuline? Write m/a and give pharmacological effects of insulin.  
b). Classify hypoglycemic agents? Give the indications and adverse effects of Insuline. How does Insuline lowers blood sugars in diabetes patient.
3. a) What are the Thyroid hormones? Write Function, biosynthesis and m/a of T<sub>3</sub> T<sub>4</sub>  
b) Name the Ecbolics. Compare various effects of oxytocin, ergometrine and prostaglandins
4. a) Define nutritional pharmacology? What are the nutritional drugs and biological in poultry.  
b) Write down the regulation of blood calcium levels in pregnant cow?  
c) Why dietary cation anion difference in animal nutrition.
5. **Write Short note**  
(a) PRID & IUDs; (b) Spermicides; (c) Abruptio placental ; (d) Rh iso immunization;  
(e) Steroid hormones ; (f) Rhodopsin cycle;

**Chattogram Veterinary and Animal Sciences University**

Department of Physiology, Biochemistry & Pharmacology

MS (Pharmacology)

Final Examination-2020

July-December Semester

Sub: Pharmacy (VPHA-618)

Total Marks: 40

Time: 2 hours

**Answer the following questions any four.**

**8 x 5 = 40**

1.
  - a. How will you start a modern veterinary pharmaceutical industry in your city?
  - b. What are the regulatory bodies to regulate all the regulatory matters related to drug, food and cosmetics in BD and how?
2. **Write down the various parts of the following instrument with their functions: (any five)**
  - a. Distillation plant; b. Gelatin capsule filling machine; c. Rotary die machine; d. HPLC;
  - e. Tablet coating machine; f. Sachet filling machine.
3. **Differentiate followings :**
  - a. Drug, food, medicine, cosmetics & vaccine.
  - b. Forensic and governmental pharmacy.
  - c. Drug compounding and drug dispensing.
  - d. Drug standardization and packaging.
  - e. Hospital, clinics, mobile clinics & Ambulatory clinics.
4.
  - a) What are the residual effects of drugs?
  - b) Sketch the process to evaluate residual effect of drug?
  - c) Write about common techniques for the detection of AMR.
5.
  - a) What are drug incompatibilities? Classify drug interactions.
  - b) State "Drug regulation roles and act".
  - c) Mention the role of WHO in drug regulations.