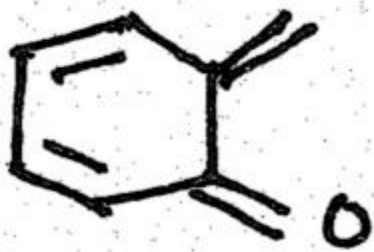
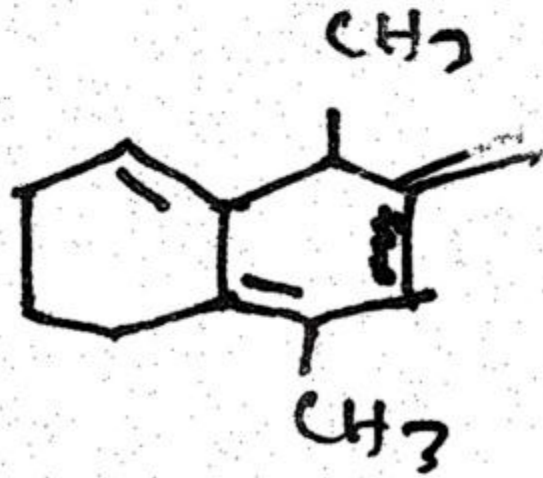


# Chittagong Veterinary and Animal Science University

## Pharmaceutical Chemistry MSc. Jan-June Semester Examination 2014

1.	Write down the basic principle of UV-VIS Spectroscopy	05
2.	What is Lambda max? Calculate the lambda max of following compounds:  a)  b) 	05
3.	Write down the working principle of IR Spectroscopy. What information we can be extracted from IR spectrum.	05
4.	What do you mean by fingerprint region? Describe the -OH, -NHR, -COOH functional groups identification of the IR spectrum.	05
5.	Write down the basic principle of the proton NMR.	05
6.	What is spin-spin splitting? Show the splitting pattern of the following compounds : CH <sub>3</sub> -CH <sub>2</sub> -CH <sub>3</sub> , CH <sub>3</sub> -CH <sub>2</sub> -OH	05
7.	What do you mean by chemical shift? Describe an ideal NMR spectrum	
8.	What are the basic components of HPLC? Distinguish between isocratic and gradient system in HPLC.	05
9.	Describe the basic principle of EI-MS	05
10.	What is m/z ? Compare the different types of ionization process in MS.	05

Submitted by —



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Chittagong Veterinary and Animal Sciences University  
MS in Pharmacology January-June Semester Final Examination/2014

Department of Physiology, Pharmacology and Biochemistry

Course Title: Autacoids and Their Pharmacological Modulators

Course Code: APM-601

Total Marks: 40; Time: 2 hours

*Answer all questions below. Right margin indicates full marks*

- Q.1. a. How do you differentiate hormones and autacoids? 2.0  
b. What are the factors that stimulate mast cell to release histamine? 3.0  
c. Write down the pharmacological effects of histamine 5.0
- Q.2. a. Classify antihistaminic drugs according to types of receptors. 3.0  
b. Write down the general principle of mode of action of antihistaminic drugs. 5.0  
c. Enlist the antimicrobials that are usually prescribed with antihistaminic drugs. 2.0
- Q.3. a. Explain the term "Eicosanoids". 2.0  
b. Write down the synthetic pathway of eicosanoids. 5.0  
c. What are the pharmacological effects of prostaglandins? 3.0
- Q.4. a. Give five examples of NSAIDS and write down the general mode of action of these drugs. 3.0  
b. List the adverse effects of NASIDS and their contraindications. 3.0  
c. Write the specific roles and actions of glucocorticoids. 4.0

Chittagong Veterinary and Animal Sciences University  
MS in Pharmacology January-June Semester Final Examination/2014

Department of Physiology, Pharmacology and Biochemistry

Course Title: Chemotherapy (CHT-601)

Course Code:

Total Marks: 40; Time: 2 hours

*Answer all questions below. Right margin indicates full marks*

- Q.1. a. Explain "chemotherapeutic triangle" 3.0  
b. How do you differentiate antibiotics from sulphonamides? 2.0  
c. How do bacteria become resistance to antimicrobials? 3.0
- Q.2. a. Write down the historical development of  $\beta$ -lactam antibiotics. 4.0  
b. Why do  $\beta$ -lactam antibiotics not work against mammalian cells and gm (-ve) bacteria? 3.0  
c. Write down the toxic effects of  $\beta$ -lactam antibiotics and sulphur drugs. 3.0
- Q.3. a. Write down the benefits of clavulanic acid and sulbactam. 3.0  
b. Why should tetracycline not be used during production and pregnancy of livestock and poultry? 4.0  
c. Write down five immuno-suppressive antimicrobials. What are the side effects of aminoglycosides? 4.0
- Q.4. a. Compare between i) sulphonamides and potentiated sulphonamides; ii) quinolones and fluroquinolones. 4.0  
b. What do you mean by drug withdrawal period? List the withdrawal period of different antimicrobials and write down its importance. 4.0  
c. Write down the pharmacology of metronidazole. 4.0

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

**MS in Physiology Final Examination 2014**

**Semester: January-June**

Course Title: Animal Behavior and Welfare (Theory)

Course Code: ABW-601

Total marks: 40, Time: 2 hours

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

- 1 a. Why will you study farm animal behavior? Write down the normal behavior of chickens. 3
- b. How do you recognize leader in a group of animal? Discuss about social organization of cattle. 4
- c. What is neuro-ethology? How does limbic system of brain regulate animal behavior? 3
- 2 a. Enumerate juvenile behavior of calves and lamb 3
- b. What are the general principles before slaughter of cattle? Write a short note about slaughter houses of Bangladesh. 4
- c. How animal communicate by olfactory substance? What is dominance, hierarchies and leadership? 3
- 3 a. How can you assess the animal welfare? Why assessing poor welfare is important in study of farm animal welfare? 3
- b. Define halal slaughter. What are the OIE guidelines for land transport of cattle? 4
- c. What is courtship? Write down the principle events in parturient behavior of cow. 3
- 4 a. Define stress and distress. Write down the critical points of welfare during cattle handling and transport. 3
- b. Define ethogram, flight distance, point of balance, monocular vision, and binocular vision. 3
- c. What is stereotypy? Write down the abnormal behavior of cattle, horse and chickens. 4
- 5 a. Write down the critical points of welfare of dairy cow. How will you minimize heat stress in dairy cow? 3
- b. Do you find any relation between animal welfare and economy? Briefly discuss about it. 3
- c. Briefly discuss about recent progress of animal welfare in Bangladesh. 4

**Chittagong Veterinary and Animal Sciences University**  
**MS in Physiology January-June Semester Final Examination 2014**  
**Department of Physiology, Biochemistry and Pharmacology**  
**Course Title: Immunophysiology**  
**Course Code: IMP- 601**  
**Full Marks: 40**  
**Time: 2 hours**

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

1. a. What is immunity? What are the various types of immunity? Describe briefly. 5  
b. Differentiate between the non-specific immunity with specific immunity. What are the factors influencing immunogenicity. 5
2. a. Classify immunoglobulins and draw a picture of IgG. Differentiate between different classes of immunoglobulin. 5  
b. Describe the different methods of production of antibody. 5
3. a. Define cytokines and interleukins. What are the toxic effects of cytokines? 5  
b. Define hypersensitivity. Describe the mechanism of allergic reaction. 5
4. a. Define autoimmunity, autoantigen, autoantibodies, autoimmune disease, autograft. 5  
b. Differentiate between i) hormone and cytokines ii) killed and live vaccine 5
5. a. What are the host responses to injury? Briefly describe. 5  
b. Define anaphylaxis. Write down the mechanism of anaphylaxis. 5

**Chittagong Veterinary and Animal Sciences University**  
**MS in Physiology January-June Semester Final Examination 2014**  
**Department of Physiology, Biochemistry and Pharmacology**  
**Course Title: Avian Physiology**  
**Course Code: AVP- 601**  
**Full Marks: 40**  
**Time: 2 hours**

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

1. a. Write down the process of erythropoiesis in chicken. What are the defensive properties of neutrophil and monocyte in chicken? 5
- b. Write down the respiratory mechanism of chicken. 5
2. a. What are the lymphoid organs presents in duck? Write down the difference between adaptive immunity and innate immunity. 5
- b. Differentiate between heterophil and neutrophil. 5
3. a. Define blood. Do you think there is any importance of nucleus in chicken RBC?- Justify your statemen. 5
- b. How do birds regulate their body temperature during extreme heat? 5
4. a. Briefly describe the carbohydrate digestion in turkey. 5
- b. How do urine volume is regulated in birds? Briefly describe the hormonal regulation of urine volume. 5
5. a. Cite the fertilization site in chicken, duck and geese. How do egg formation occur in birds? 5
- b. Define cardiac cycle, venous return. How does heart beat regulation occur in chicken? 5

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

**MS in Physiology Final Examination 2014**

**Semester: January-June**

Course Title: Body fluids and Circulatory Physiology (Theory)

Course Code: BCP-601

Total marks: 40, Time: 2 hours

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

- 1 a. List the different types of biological anticoagulants. 3
- b. List the name of fluid compartments of the body. Write down the important constituents of extracellular and intracellular fluids. 4
- c. Briefly describe the mechanism of regulation of heart. 3
- 2 a. List the functions of lymph and synovial fluids 3
- b. Narrate lymph formation in the body 4
- c. List the circulations exist in the body. State the importance of a hepato-portal circulation. 3
- 3 a. What is erythropoiesis? Mention the factors that regulate erythropoiesis 3
- b. Mention the cells of defense mechanism with their role in that process. 4
- c. Write down the courses of lymph flow. What are the factors that are responsible for lymph flow? 3
- 4 a. Mention the properties and important functions of platelet. 3
- b. Describe the intrinsic mechanism of blood coagulation. 3
- c. What is cardiac output? Write down the regulating factors of cardiac output. 4
- 5 a. What is action potential? Briefly describe the successive stages of action potential in a diagram. 3
- b. Mention the formation and course of C.S.F 3
- c. List the primary factors of coagulation of blood. State the factors that hasten and prevent coagulation of blood. 4

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

**MS in Physiology Final Examination 2014**

**Semester: January-June**

Course Title: Endocrine and Reproductive Physiology (Theory)

Course Code: ERP-601

Total marks: 40, Time: 2 hours

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

- 1 a. Define estrus and estrus cycle. Describe the fluctuations of different reproductive hormones during estrus cycle of a cow. 3
- b. What are the luteal phases of estrus cycle of a cow? How do you determine the cow and doe are in estrus? 4
- c. List the hormones responsible for mammary gland development. How is milk ejection in cow? 3
- 2 a. State the role of oxytocin and prostaglandin in reproduction. 3
- b. What is spermiogenesis? Show a diagrammatic representation of spermatogenesis. 4
- c. What is superovulation? How could superovulation be performed? 3
- 3 a. Why cortisol is known as stress hormone? How ADH secretion is regulated? 3
- b. Write down the name of adrenal hormones. State the functions of catecholamines. 4
- c. How is parturition initiated? Write down the mechanism of parturition of a cow. 3
- 4 a. Describe the effects of thyroid hormones on animal body. 3
- b. Why pineal gland is called biological clock? What are the biological effects of melatonin in individual? 3
- c. Which vitamin can act as a hormone and why? Show in schematic way about the activation of that vitamin in kidney. 4
- 5 a. What is androgen? Write down the functions of testosterone and sertoli cells. 3
- b. Write down the detailed use of prostaglandin in the process of estrus synchronization. 3
- c. What are hormones derived from cholesterol? Briefly describe the synthesis process of progesterone, cortisol, and aldosterone in mammalian body. 4



**Chittagong Veterinary and Animal Sciences University**  
**MS in Physiology January-June Semester Final Examination 2014**  
**Department of Physiology, Biochemistry and Pharmacology**  
**Course Title: Molecular Cell Physiology**  
**Course Code: MCP- 601**  
**Full Marks: 40**  
**Time: 2 hours**

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

1. a. What are the physiological phenomenon in animal body? Describe the electron transport chain mechanism. 5  
b. What is protein GLUT4 recycling and insulin signaling- Briefly describe. 5
2. a. What is central dogma? Briefly describe the translation process in protein synthesis. 5  
b. Define mRNA splicing. How does protein get transported to mitochondria? 5
3. a. Define cell communication. What are the unique signaling pathways in autocrine, paracrine and endocrine regulation? 5  
b. Briefly describe signal transduction mechanism in cell communication. 5
4. a. What are the molecular basis of death ligands and their receptors? 5  
b. Enumerate the contemporary view on cell survival and cell death. 5
5. a. Write down the dynamics of cytoskeleton and its role in intercellular communications. 5  
b. How does movement in non-muscle cells occur in molecular level? 5

**Chittagong Veterinary and Animal Sciences University**

**MS in Biochemistry**

January-June Semester' 2014

Department of Physiology, Biochemistry and Pharmacology

Faculty of Veterinary Medicine

**Course Title: Principles of Biochemical Techniques**

**Course Credit: BPT-601**

Time: 2 hours

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

1. What is Chromatography? Classify the Chromatographic methods. Distinguish between Size-exclusion chromatography and Affinity chromatography. 1+2+2=5
2. What is centrifugation? If you want to isolate ribosomes from a liver sample what type of centrifugation technique would you follow? Describe this centrifugation technique. 1+1+3=5
3. Define electrophoresis. Write down the principle of different types of electrophoresis. 1+4=5
4. Define Photometry, Fluorimetry, Flame Photometry and Optical Density (OD). State the principle of Beer-Lambert Law. 2+3=5
5. a. Explain the following terms: Analyte, Chromatogram, Eluate, and Mobile phase. 0.5×4=2  
b. Discuss the applications of Gas-Liquid Chromatography. 3
6. Draw a flow diagram of a HPLC and discuss the functions of paper chromatography. 5
7. What is Mass Spectroscopy? Write short notes on any two of the following: (i) GC-MS (ii) MALDI and (iii) Molecular ion. 1+2×2=5
8. Define the following terms: (a) Gene manipulation (b) Gene cloning (c) Genetic engineering (d) rDNA Technology, and (e) Biotechnology 5×1=5
9. What is cDNA? Describe the process of cDNA formation. 1+4=5
10. Define DNA sequence. Distinguish between Sanger and "Maxim and Gilbert" DNA sequencing methods. 1+4=5

**Chittagong Veterinary and Animal Sciences University**

**MS in Biochemistry**

January-June Semester' 2014

Department of Physiology, Biochemistry and Pharmacology

Faculty of Veterinary Medicine

**Course Title: Biochemistry of Natural Products**

**Course Credit: BNP-601**

Time: 2 hours

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

1. Define Vitamins. Classify vitamins. Vitamin D is a hormone but not a vitamin-Justify. 1+1+3=5
2. Distinguish between hormone and enzyme. Differentiate between various types of hormone action. 1+4=5
3. How do you distinguish between mineralocorticoids and adrenocorticoids. Describe the biosynthesis of adrenocorticoids. 2+3=5
4. a. Write down the structure of the following vitamins: (i) Niacin; (ii) Pyridoxine 2  
b. Write down the biochemical functions of following vitamin like compounds: 3  
(a) Choline (b) Inositol (c) Lipoic acid
5. Describe the possible mechanism of antimicrobial resistances. 5
6. What do you mean by base peak? What do you know about  $M^+$  and  $M^{+}$  Ion? How will you distinguish three isomeric butanols on the basis of mass spectroscopy? 1+2+2=5
7. Write a brief note on the following: a. Metastable Ions (b) McLafferty Rearrangement 2.5×2=5
8. What is NMR spectroscopy? Write down the applications of NMR spectroscopy. 1+4=5
9. Enumerate the important features in NMR spectroscopy. Describe any three of those. 2+3=5
10. What is chemical shift? Describe the factors influencing chemical shift. 1+4=5

**Chittagong Veterinary and Animal Sciences University**  
**MS in Biochemistry**  
January-June Semester' 2014  
Department of Physiology, Biochemistry and Pharmacology  
Faculty of Veterinary Medicine  
**Course Title: Intermediary Metabolism and Its Regulation**  
**Course Credit: IMR-601**  
Time: 2 hours

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

1. What is catecholamine? Describe the biosynthesis of catecholamine. 1+4=5
2. What is the precursor of serotonin? Write down the functions of serotonin and melatonin. 1+2+2=5
3. What is gout? Which enzyme is responsible for formation of uric acid from purines? Describe the process of purine catabolism. 1+1+3=5
4. What is simple lipid? How does simple lipid produced in living system? 1+4=5
5. Imbalance in the rate of triacylglycerol formation and export causes fatty liver syndrome. Explain. 5
6. Differentiate between Glycolysis and Fermentation. Excessive ingestion of fermented products is harmful for the living body. Explain. 2+3=5
7. What is gluconeogenesis? Tricarboxylic Acid Cycle is amphibolic in nature –Justify. 1+4=5
8. What are phospholipids? State the biosynthesis of gangliosides. 1+4=5
9. Define HMP Shunt pathway. Write down the significance of this pathway. 1+4=5
10. Ruminant can synthesis vitamin C but primate cannot do so. Why? How does milk sugar produce in mammary glands? 1+4=5

January-June MS in Pharmacology Final Examination-2014  
Department of Physiology, Biochemistry and Pharmacology  
Faculty of Veterinary Medicine  
Chittagong Veterinary and Animal Sciences University  
Course Title: General Toxicology; Course code: GTL-601  
Total Marks: 40; Time: 2.00 hours



Answer any Four (4) questions from the followings:

- Q1. a. Define Toxicology. Differentiate toxin from poison.  
b. Classify toxicant based on toxicity potential and target organ with examples.
- Q2. a. Define and classify antidote with examples. Write down the antidote of Iron and OP.  
b. Briefly describe the diagnosis of Nitrate and lead poisoning in cows.
- Q3. a. What is alkali disease? How will you diagnose and treat it?  
b. Briefly describe the general treatment of a poisoning case.
- Q4. a. Describe the factors that influencing the toxicity of a toxicant.  
b. Write down the treatment of arsenic and lead poisoning in livestock.
- Q5. a. Write down the diagnosis and treatment of sodium chloride poisoning in cattle.  
b. What are the factors involve in Nitrate poisoning. How will you treat it in case of a goat?

January-June MS in Pharmacology Final Examination-2014  
Department of Physiology, Biochemistry and Pharmacology  
Faculty of Veterinary Medicine  
Chittagong Veterinary and Animal Sciences University  
Course Title: General Pharmacology; Course code: GPH-601  
Total Marks: 40; Time: 2.00 hours

Answer any Four (4) questions from the followings:

- Q1. a. Differentiate drugs from medicine. Classify drugs based on sources and therapeutic uses. 6.0  
b. Briefly describe the branches of pharmacology. 4.0
- Q2. a. Define Pharmacokinetics. Write down the factors that involved with drug metabolism. 5.0  
b. Define Bioavailability, Biological half life and Drug incompatibility. 5.0
- Q3. a. Write down the sources of drugs with active principal. 5.0  
b. Briefly describe the different parts of a good prescription. 5.0
- Q4. a. Differentiate therapy from chemotherapy. Write down the principals of therapy. 6.0  
b. Briefly describe the uses of clinical pharmacology in veterinary practice. 4.0
- Q5. a. Differentiate lotion from liniments. Write down the possible methods of drug administration with examples. 7.0  
b. Briefly describe the drugs dosages forms. 3.0

**MS in Pharmacology January-June Semester Final Examination 2014**

**Chittagong Veterinary and Animal Sciences University**

**Department of Physiology, Biochemistry and Pharmacology**

**Course name: Phytotoxicology**

**Course Code: PTL-601**

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

**Answer the following question (any four):**

1. (a) Define phytotoxicology, phytobiotics & Detoxification. How detoxification mechanism of plant grow in grazing animal. 5
- (b) Define common prevention of plant poisoning. 5
2. (a) Write common phytotoxin with their antidote (any 10) 5
- (b) Explain field diagnostic techniques for detection of plant poisoning in Bangladesh. 5
3. (a) Write down the cancer producing plant poisoning in large animals. How does plant produce cancer the animal body? 5
- (b) Write down the important plant toxins and antinutritional factors with their plant sources. 5
4. (a) Write down the family and poisonous principles of mushroom. Which mushroom species causes CNS signs? 5
- (b) Write down the chemical signs of Dhool Kalamy in goat and Tobacco in human. 5
5. Write short note (any five) 10
  - a) Marijuana
  - b) Walnut
  - c) Physical antidotes for plant poisoning
  - d) Occasional development of toxic substances plant.
  - e) Photodynamic substances of poisonous plants.
  - f) Decay of knowledge on poisonous plant