

January-June MS in Physiology Final Examination-2019
Department of Physiology, Biochemistry and Pharmacology
Faculty of Veterinary Medicine
Chittagong Veterinary and Animal Sciences University
Course Title: Body Fluids and Circulatory Physiology
Course code: BCP-601; Total Marks: 40; Time: 2.00 hours

Answer any four (4) questions from the following:

- Q1. a. Define blood group. Enlist the importance of group grouping. What are the hazards of blood transfusion? 5.0
b. Write down the differences between extrinsic and intrinsic mechanism of blood coagulation. State the factors that hasten and prevent coagulation of blood. 5.0
- Q2. a. Define lymph. How lymph is formed in the body? 5.0
b. What is haemoglobin? Describe the synthesis of haemoglobin. What is its derivatives? 5.0
- Q3. a. Write down the composition and functions of blood. 5.0
b. In sketch, show the stages of granulopoiesis. Briefly discuss about the defensive properties of neutrophils and macrophages. 5.0
- Q4. a. What is blood pressure? Briefly discuss about the physiological factors those are responsible for variations of blood pressure. 5.0
b. What is cardiac output and stroke volume? Write down the regulating factors of cardiac output. 5.0
- Q5. a. Write down the functions of special tissues of the heart. Discuss the propagation of impulse through myocardium. 5.0
b. Note the normal time and voltage of P-wave and QRS complex and normal time of PR and QT interval. How do you measure P mitrale, hypokalaemia and hypercalcemia in the grid. 5.0

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

MS in Physiology Final Examination 2019

Semester: January-June

Course Title: Avian Physiology (Theory)

Course Code: AVP-601

Total marks: 40, Time: 2 hours

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

1. a. What are the parts of avian digestive system? Describe about crop milk. 5
b. List the parts of oviduct. How those parts are contributing in egg formation. 5
2. a. List the mechanical factors of digestion? Enumerate the hormone found in the gastrointestinal tracts with their functions. 5
b. What are the physiological roles of bile salts? Briefly describe the absorption of nutrients in chickens. 5
3. a. What are the parts of respiratory system of poultry? Write the physiological role of air sac in respiration of poultry. 5
b. Write the compositions of urine of birds. Briefly describe the regulation of urine volume in chicken. 5
4. a. Write the composition of semen? Briefly sketch the spermatogenesis in duck? 5
b. Briefly discuss the granulopoiesis in birds. 5
5. a. Write down the process of erythropoiesis in chicken? What are the defensive properties of lymphocyte and neutrophil in chicken? 5
b. Define cardiac output? Briefly discuss the regulation of heart in birds. 5

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

MS in Physiology Final Examination 2019

Semester: January-June

Course Title: Immunophysiology (Theory)

Course Code: IPH-601

Total marks: 40, Time: 2 hours

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

1. a. What is immunity? How many types of immunity are present in a calf body? Define them along with their components. 4
- b. Describe different classes of lymphocytes. Draw the overview of immune response in vivo. 6
2. a. What is antigen and adjuvants? What should be the properties of antigen? What are the importances of adjuvant in a vaccine? 4
- b. Define and draw a basic structure of antibody. Differentiate among different types of immunoglobulin. 6
3. a. Define phagocytosis. How do the microbes evade phagocytosis? 4
- b. Draw all three pathways of complement activation. 6
4. a. Draw and differentiate between the MHC molecules. 5
- b. Draw the class II MHC pathway of antigen presentation. 5
5. a. What is autoimmunity? How different types of autoimmunity (both normal and abnormal) are occurred in an animal body? 5
- b. Shortly describe some autoimmune skin and endocrine diseases. Describe Myasthenia gravis. 5

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

MS in Physiology Final Examination 2019

Semester: January-June

Course Title: Animal Behavior and Welfare (Theory)

Course Code: ABW-601

Total marks: 40, Time: 2 hours

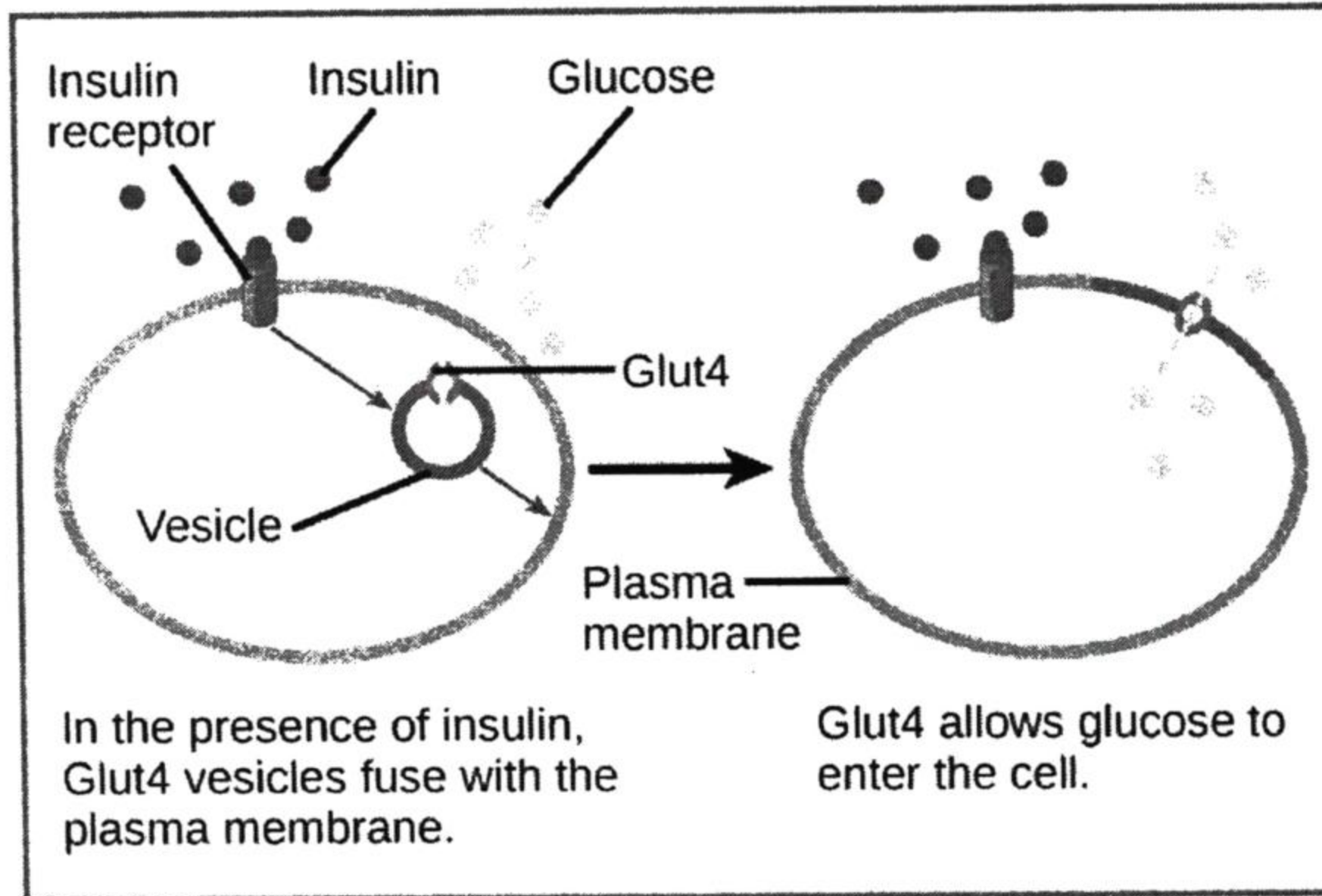
(Figures in the right indicate full marks. Answer any FOUR (4) questions).

1. a. List the tools that used for recording animal behavior. Write down the normal behavior of cattle and chickens. 5
- b. How will you assess welfare of intensively managed dairy cow? Discuss the welfare protocol in dairy farm. 5
2. a. Define stress. Mention the critical points of welfare during cattle handling and transport. 5
- b. Enlist the methods of slaughter? What are the OIE guidelines for slaughter of cattle. 5
3. a. List the five principles of animal welfare. Briefly discuss the animal welfare development in Bangladesh? 5
- b. Define flight zone and point of balance? Describe about social behavior of cattle. 5
4. a. Write down the critical points of welfare of dairy cow. How will you minimize heat stress in dairy farm? 5
- b. Write a short note about stress physiology. 5
5. a. What are the welfare indicators during animal transport? Briefly discuss the animal transportation system in Bangladesh. 5
- b. What are the ways to promote animal welfares situations in Bangladesh? 5

Chittagong Veterinary and Animal Sciences University
MS in Physiology January-June Semester Final Examination 2019
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 indicate full mark. Answer any 4 (FOUR) from the following questions.

1. a.



5

How will you illustrate the GLUT4 transporter for insulin action from the above diagram?

b. Briefly describe the insulin signaling.

5

2. a. Please explain the exocytic pathway of protein trafficking.

5

b. Briefly describe the DNA double Helix.

5

3. a. What is the dynamics of cytoskeleton and state the role of cytoskeleton in intercellular communications?

5

b. Show in a table the various ionic concentrations in fluid compartments of the body. Enlist the resting potential of different cells.

5

4. a. Define central dogma. How does replication occur in a eukaryotic cell DNA?

5

b. What are the advanced tools and techniques in molecular biology? Sketch the SDS-PAGE method.

5

5. a. Define cell communication. What are the unique signaling pathways in autocrine, paracrine and endocrine regulation?

5

b. What is death ligand. Describe its role in immune system.

5

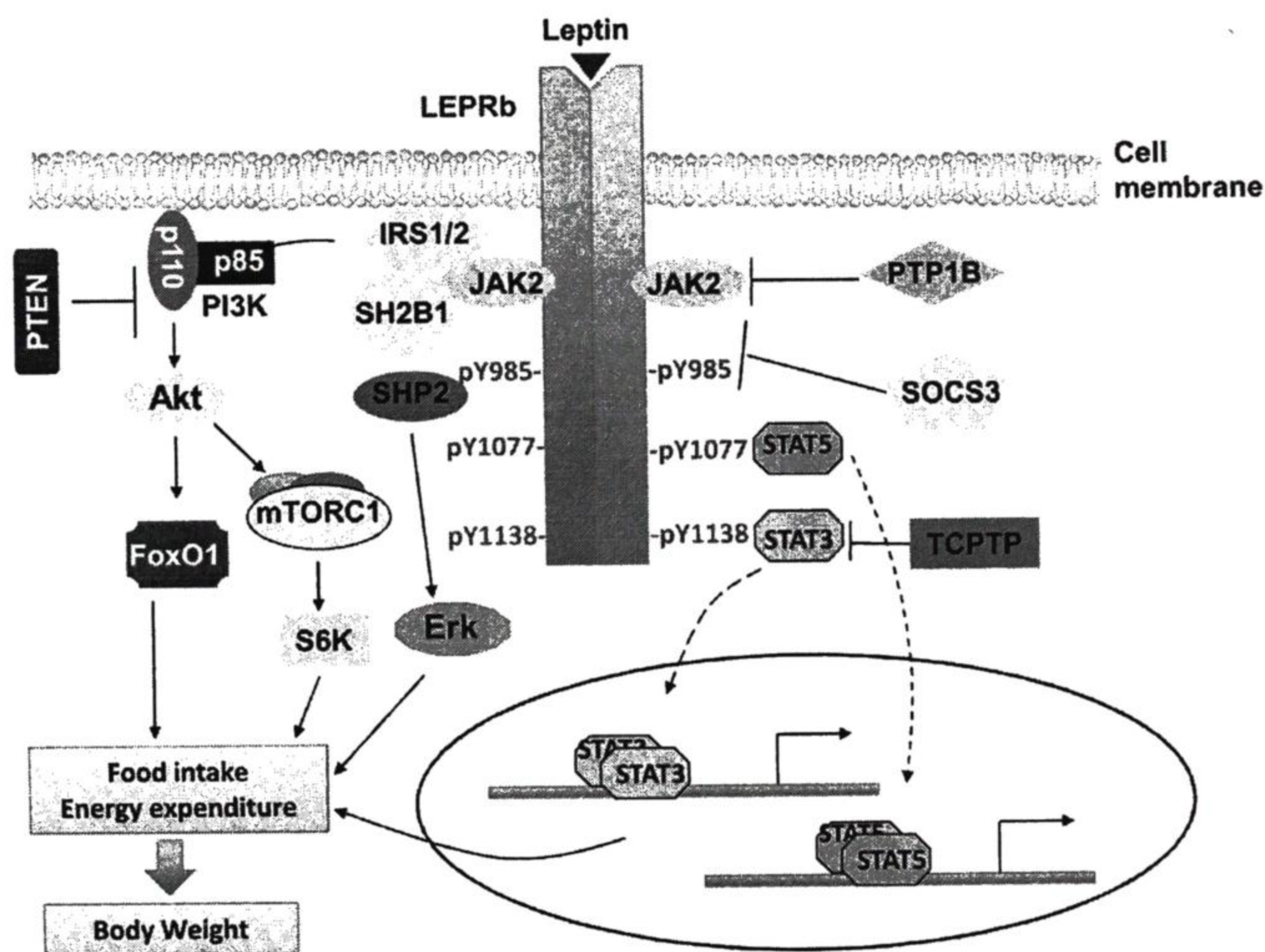
Chittagong Veterinary and Animal Sciences University
MS in Physiology January-June Semester Final Examination 2019
Department of Physiology, Biochemistry and Pharmacology
Course Title: Endocrine and Reproductive Physiology
Course Code: ERP-601
Full Marks: 40
Time: 2 hours

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

1. a. Define hormone and classify on the basis of site of action with example. 5
- b. Enumerate the mechanism of action of protein hormone. 5

2. a. Define leptin signaling and leptin resistance. 5

- b. 5



How many signaling pathways of leptin exist in the above diagram? How will you correlate between LEPRb, JAK2 and STAT?

3. a. Do you think prostaglandin and leukotrienes could acts as hormone? If so why? 5
- b. List the Gastrointestinal hormones and discuss their function. 5
4. a. How does testosterone and cryptorchidism are related? Briefly explain. 5
- b. Do you think ovarian endocrinology is closely related with reproductive physiology of female animal? If so, How? 5
5. a. What do you mean by endocrine disrupting chemicals? List 10 potential endocrine disrupting chemicals. 5
- b. How does endocrine disrupting chemicals affect the fertility of animal? 5

Chittagong Veterinary and Animal Sciences University
MS in Biochemistry January-June Semester-Final Examination 2015
Department of Physiology, Biochemistry and Pharmacology
Course Title: Advanced Molecular Biology

Course Code: AMB-601

Full Marks: 40

Time: 2 hours

Answer any eight of the following questions. Figure in the right margin indicates full marks.

- | | | | |
|-----|-----|--|---------|
| 1. | a. | Define small RNAs. Classify the small RNAs with their biological functions. | 1+2 |
| | b. | Elucidate some biomarkers associated with disease diagnosis. | 2 |
| 2. | a. | Differentiate between TGS vs PTGS. | 2 |
| | b. | Describe the mechanism of RNA interference. | 3 |
| 3. | a. | Distinguish between DICER and RISC. | 2 |
| | b. | Describe the gene silencing protocol in brief. | 3 |
| 4. | | Define bioinformatics. Write down the application of bioinformatics. | 1+4=5 |
| 5. | | Differentiate between genomics and proteomics. Write an overview in proteomics analysis. | 2+3=5 |
| 6. | | Define the following terms: Cytogenetic map, cystic fibrosis, genetic marker, cDNA library, and microsatellite polymorphism. | 1×5=5 |
| 7. | | What is DNA fingerprinting? Enumerate the uses of DNA fingerprinting. | 1+4=5 |
| 8. | | Define genome mapping? Differentiate between Genetic Maps and Physical Maps. | 1+4=5 |
| 9. | | Phage display-a technology for protein study. Explain briefly. | 5 |
| 10. | | Write short note on the following: | 2.5*2=5 |
| | i. | SWISSPROT | |
| | ii. | MALDI-TOP | |

Chattogram Veterinary and Animal Sciences University

MS in Biochemistry Final Examination, 2019

Course Title: Intermediary Metabolism and Regulation

Course Code: IMR-601

Full Marks: 40: Time: 2.0 Hours

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Figures in the right margin indicate full marks.

1. a. Define β -oxidation. Illustrate the steps of β -oxidation those happened in mitochondria along with enzymes and energy involvement. 4.0
- b. Calculate energetics for complete oxidation of Linoleic acid. 4.0
2. a. 'TCA cycle is the most common pathway of metabolism'- justify the statement. Write down the steps of TCA where CO_2 is produced along with enzymes. 4.0
- b. How pentose sugar is form from hexose sugar? During Ramadan how body physiology compensate glucose if anybody takes egg and milk instead of carbohydrate rich feed. 4.0
3. a. How urea is excreted from body? What will happened if body accumulate excess NH_3 ? 4.0
- b. Explain amino acid pool? Discuss about metabolic fate of five essential amino acids for human. 4.0
4. a. NADH_2 and FADH_2 can generate 3 and 2 ATP respectively- Explain. 4.0
- b. Describe the roles of liposomes and glyoxysomes in metabolism along with example. 4.0
5. a. Is there any hormonal control in metabolism? If yes, explain briefly. 4.0
- b. Write short note- i. Biochemistry of muscle contraction 2.0
ii. Biosynthesis of adenine and uracil. 2.0

Chittagong Veterinary and Animal Sciences University
MS in Biochemistry January-June Semester Final Examination 2015
Department of Physiology, Biochemistry and Pharmacology
Course Title: Biochemistry of Natural Products

Course Code: BNP-601

Full Marks: 40

Time: 2 hours

Answer any eight of the following questions. Figure in the right margin indicates full marks.

1. Describe briefly the theory of *nmr* Spectroscopy. What information can be obtained from the *nmr* absorption peak? 3+2=5
2. a. What is meant by the term chemical shift? 1
b. Describe with examples the various factors which affect the magnitude of the chemical shift. 4
3. a. Which of the following atoms do not exhibit nuclear magnetic resonance?
 $C^{12}, O^{16}, N^{14}, N^{15}, H^2, F^{19}, C^{13}, P^{31}$ 2
b. Write down the applications of *nmr* spectroscopy. 3
4. a. Write down the principle of Mass Spectrometry. 3
b. What do you know about M^+ and M^{+o} ion? 2
5. Describe the instrumentation process of Mass Spectrometry. 5
6. a. Write a brief note on the shielding and deshielding of a nucleus. 2.5×2=5
b. Write a note on the McLafferty rearrangement.
7. a. What do you understand by Nitrogen Rule? 2
b. How would you distinguish between ethylamine, diethylamine, and triethylamine on the basis of mass spectroscopy? 3
8. Define antibiotics. Classify them based on their mode of action. 5
9. Describe the chemical synthesis of cholesterol. 5
10. What are flavonoids? Classify these with biological and physiological functions. 2+3=5

MS (Biochemistry) January-June Semester Final Examination-2019
Chittagong Veterinary and Animal Sciences University
Faculty of Veterinary Medicine
Department of Physiology, Biochemistry and Pharmacology
Course title: Advanced Nutrition and Nutritional Biochemistry
Course Code: ANB-601
Total Marks: 40

Answer any 8 questions and figure in the right margin indicate full marks

- 1 How Nutrition impact on immune systems? What happens when cell deprived major nutrients? 5
- 2 What is the difference between Nutrigenomics and Nutrigenetics? How does nutrition affect gene expression? 5
- 3 Food cooking degrades around 30-40% of nutrition. So what is the way to preserve the nutrition of food? 5
- 4 How you will adjust dietary chart against infection. 5
- 5 Describe the role of molecular genetics to improve GM foods with three examples? 5
- 6 Genes specify functional products (such as proteins)- justify this statement 5
- 7 What is nutrient drug interaction? How does food interact with the absorption of drugs? 5
- 8 Describe about nutrition interventions project in Bangladesh. 5
- 9 Describe the role of UN on nutritional development program in developing world. 5
- 10 Enumerate the basic processes of digital Bangladesh for improved health status for millennium development goals (MDG). 5

Chittagong Veterinary and Animal Sciences University
MS in Biochemistry January-June Semester Final Examination 2015
Department of Physiology, Biochemistry and Pharmacology
Course Title: Principles of Biochemical Techniques
Course Code: PBT-601

Full Marks: 40

Time: 2 hours

Answer any eight of the following questions. Figure in the right margin indicates full marks.

1. What are the basic types of cell lines and which type of tissue involve in formation of cell line? 5
2. What are the conditions required for cell line growth? 5
3. What is the role of trypsin and EDTA in cell culture? How EDTA help trypsin in cell detachment? 5
4. Why characterization of cell line is necessary? 5
5. a. Define and classify chromatography. 1+2=3
b. Write down the principle of Adsorption column chromatography and Ion-exchange chromatography. 2
6. What is electrophoresis? Describe briefly different types of electrophoresis. 1+4=5
7. Write brief note on: 2.5×2=5
(a) Infra-red Spectroscopy
(b) Flame Spectrophotometry
8. What is biotechnology? Write down the basic principle of biotechnology. 1+4=5
9. What is restriction enzyme? Write down some restriction enzymes with sources, recognition sequences and the products formed. 1+4=5
10. What is cloning? Describe gene cloning strategies in brief. 1+4=5

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. Prostatitis
 - iii. Anorchism and monorchism
4. a. Enlist the risk factors associated with testicular degeneration 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