Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination-2023
Course Title: Zoo, Wild and Lab Animal Management (Theory)
Course Code: ZAM-201
Full Marks: 35, Time: 2 Hours

(Figures in the right margin indicate full marks. Answer **three (3)** questions from each section where **question number 5** is compulsory. Use separate answer script for each section. Fractions of the questions are encouraged to answer together.)

SECTION-A

1. a) Define following terms: Ecology, Environment, Zoo, Wildlife, Safari park, Wildlife Management. 3.0

   b) Relate about the stochastic and deterministic causes of extinction of wildlife. 3.0

2. a) Differentiate between conservation from preservation. Briefly discuss the breeding behaviour of Royal bengal tiger. 1+2

   b) Distinguish canine from feline animals. 3.0

3. a) Enlist most important laboratory animals used in laboratory research. Show the recommended space requirements for different age groups of rabbit and mice. 3.0

   b) State briefly the standard operation procedure of laboratory mice and rat. 3.0

4. Standardize the following rules for establishing a zoo: 3x2 = 6.0

   a) Administrative and staffing pattern.

   b) Principles of feeding of wild animals in captivity.

   c) Rules for breeding of animals or reproductive management.

SECTION-B

5. a) Express your ideas for different categories of threatened animals in the wild according to IUCN 2.0

   b) Mention seven criteria's with scores for calculation of threat for wild animals in Bangladesh. 3.0

6. a) Extend your ideas about special features of laboratory animals as they are used in research laboratory. 3.0

   b) Mention the adult weight, age at sexual maturity, gestation period, litter size and common disease of rabbit, guinea pig and mouse. 3.0

7. a) Categorize the wildlife habitat. Describe briefly about the components of wildlife habitat. 1+2

   b) Differentiate among convention, treaty and regulatory body related to wildlife. State objectives, mission and vision of SAZARC and IUCN. 1+2

8. Write short notes on **(any two)**: 2x3 = 6.0

   i) Flagship and umbrella species.

   ii) Translocation of wild animals.

   iii) Cold- blooded and warm-blooded animals.

DVM 2^{nd} Year 1^{st} Semester Final Examination 2023
Course Title: Animal Nutrition (Theory)
Course Code: ANT-201
Full Marks: 70, Time: 03 Hours

(Figures in the right margin indicate full marks. Answer **three (3)** questions from each section where question number **1 and 5** are compulsory. Use separate answer script for each section. Fractions of the questions are encouraged to answer together.)

SECTION-A

1. a) Define carbohydrate, nutrient and nutrition. What does TDN stand for? Why have moisture and ash been omitted from equation of TDN? 3.0

   b) Is carbohydrate dietary essential for ruminant animals? If yes, why? 4.0

   c) How does rumen gradually develop in a calf? Which major factors substantially influence rumen development? 4.0

2. a) What is vitamin? Write the name and sources of fat-soluble vitamin. 4.0

   b) Illustrate the functions and deficiency symptoms of vit-A, vit-D, vit-B1 and vit-B6. 4.0

   c) Indicate the role of water and state the factors for water requirements in animal body. 4.0

3. a) Define mineral. Classify minerals with examples. 4.0

   b) Write down the functions and deficiency symptoms of Ca, P, Fe and Zn in ruminants. 4.0

   c) State the factors affecting mineral requirements in animals. 4.0

4. a) What is feeding standard? Write the name of different feeding standards for ration formulation. 4.0

   b) Calculate nutritional requirements of a late pregnant cow having 300 kg live weight, daily weight gain 250 g and produces 8 liters milk daily. 4.0

   c) Nutritive value of napier grass, para grass, soybean meal, maize and cow pea. 4.0

SECTION-B

5. a) What is β-oxidation? How do odd chain fatty acids are metabolized in the mitochondria of the animal body? 3.0

   b) Explain the specific functions of micelle and chylomicron in lipid digestion. 4.0

   c) Differentiate cytoplasmic and mitochondrial biosynthesis of fatty acids in animal body. How do CLAs are formed in the rumen? 4.0

6. a) How does lignin depress the digestibility of crude fibre? How does primary fermentation is different from secondary microbial fermentation? 4.0

   b) Illustrate the pathways for production of VFA from corn silage. 4.0

   c) Why gluconeogenesis is an inevitable pathway for the lactating animal? What are the possible sources of glucose? 4.0

7. a) Discuss the characteristics of a balanced ration. What are the sole criteria for evaluating feeds for the ruminant animals? 4.0

   b) Why quality of protein is not important for the ruminant animal? 4.0

   c) Discuss the possible sources and fate of NH_3 in the ruminant animal. 4.0

8. Write short notes on **(any four)**: 4x3 = 12.0

   i) Total mixed ration (TMR).

   ii) Rumen environment.

   iii) Urea molasses multi-nutrient block (UMMB).

   iv) Oesophageal groove.

   v) Anti-nutritional factors in feed.

   vi) Biological value (BV).

DVM 2nd Year 1st Semester Final Examination'2023
Course Title: General Microbiology (Theory)
Course Code: GMC-201
Full Marks: 70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer **five (5)** questions from each section. Use separate answer script for each section. Fractions of the questions must be answered together.)

SECTION-A

1. a) Briefly describe the major contributions of Antony Van Leeuwenhoek, Joseph Lister, Alexander Fleming and Fannie Hesse to the development of microbiology. 4.0
   b) Identify the major structural differences between the cell wall of Gram positive and Gram negative bacteria. 3.0

2. a) Enumerate the essential factors influencing the growth of microorganism. 2.0
   b) Classify bacteria on the basis of oxygen and temperature requirements. 5.0

3. a) Give a description of the structure of peptidoglycan. 4.0
   b) Enumerate the pathways of carbohydrate metabolism in bacteria. 3.0

4. a) Define mycotoxin. 2.0
   b) Name five important mycotoxins along with toxigenic fungi. 2.0
   c) Differentiate fungal spore from bacterial spore. 3.0

5 a) What is genetic engineering? 2.0
  b) Explain the basic steps that are followed in genetic engineering. 5.0

6 a) Name two intracellular bacteria. How do the intra-cellular bacteria survive inside phagocytes? 4.0
  b) Classify bacteriological media based on purpose with example. 3.0

SECTION-B

7. a) Name portal of entry of microorganism into a host body. 2.0
   b) Describe the modes of transmission of infectious organism. 5.0

8. a) What is nucleoid and genome in bacteria? 1.0
   b) Briefly describe the process of translation in bacteria. 6.0

9. a) What is bacterial colony, fomite and nosocomial infection? 3.0
   b) Briefly explain about recombination in bacteria. 4.0

10. a) Define and classify fungi. 3.0
    b) Differentiate fungi from bacteria with example. 4.0

11. a) Define the following terms- Sterilization, Disinfection, Pasteurization and Phenol coefficient. 4.0
    b) State the principal characteristics of an ideal disinfectant. 3.0

12. a) Define fungi imperfecti and dimorphic fungi. 2.0
    b) What are the sexual and asexual spores produced by fungi? 5.0

Chattogram Veterinary and Animal Sciences University

DVM 2nd Year 1st Semester Final Examination-2023

Course Title: General Pathology-I (Theory)

Course Code: GPT-201

Full Marks: 70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any **five (5)** questions from each section. Use separate answer script for each section. Fractions of the questions are encouraged to answer together.)

SECTION-A

1. a) Define pathology, special pathology, lesion and morbid lesion. 2

   b) Write down the name of five scientists with their contribution in the field of veterinary medicine. 2

   c) Write down the types of necrosis and microscopic lesions of the following diseases or disease conditions. 3
   i) Fowl cholera ii) Abscess iii) Black Quarter

2. a) Write down the pathogenesis and pathology of fatty change. 5

   b) Mention the name and its pathogenesis of a condition when excessive fatty change is occurred. 2

3. a) How will you identify the dead cells under light microscope? 4

   b) Name the benign and malignant neoplasms of the following cells and tissues. 3
   i) Skeletal muscle ii) Endothelium of blood vessel iii) Squamous epithelium
   iv) Hepatocyte v) Melanocyte and vi) Cartilage

4. a) Write down the causes and mechanism of haemolytic and toxic jaundice. 5

   b) How will you differentiate three types of jaundice by the 'Vanden Berg' reaction? 2

5. a) Show the mechanisms of photosensitizational dermatitis in sketch form. How phylloerythrin may cause photosensitization? 4

   b) Write short note on visceral gout. 3

6. Write short notes on any **two (2)** of the following:- 3.5×2=7
   i) Lysosomal storage disease ii) Bile pigment formation and iii) Apoptosis

SECTION-B

7. a) Mention the gross lesions indicating post-mortem autolysis. What do you mean by pseudomelanosis coli? 4

   b) Differentiate post-mortem autolysis from necrosis in a tabular form. 3

8. a) What is pathological calcification? Write down the gross and microscopic lesions of calcification. Mention the causes of metastatic calcification. 5

   b) Show the mechanism of brown induration of lung. 2

9. a) Write down the gross and microscopic lesions of moist gangrene and infarct. 6

   b) Mention the three (3) conditions produced in body during gangrene. 1

10. a) Write down the lesions and classifications of atrophy. 4

    b) Enlist ten (10) developmental anomalies. 3

11. a) How radiation can induce neoplasm? 3

    b) Why neoplastic cells are immortal? Name five viruses and five parasites causing neoplasm in man and animal. 4

12. a) What do you mean by 'Sago spleen' and 'Bacon spleen'? 2

    b) Write down the pathogenesis of amyloidosis of a patient suffering with chronic inflammatory disease such as tuberculosis. 3

    c) Write down the beneficial and harmful effects of 'fibrin'. 2

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination-2023
Course Title: Neuro-endocrine and Reproductive Physiology (Theory)
Course Code:NRP-201
Full Marks: 35, Time: 2 Hours

(Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section where question number **1 and 5** are compulsory. Use separate answer script for each section. Fractions of the questions are encouraged to answer together.)

SECTION-A

1. a) Define endocrine system and endocrine gland. 1
   b) How do endocrine system and nervous system are correlated with each other? 2
   c) "Protein hormones need activation of cAMP"- justify the statement. 2

2. a) Define axon, dendrite and draw a typical neuron. 2
   b) Classify the cranial nerves. 2
   c) Give an example of unconditional reflex with explanation. 2

3. a) Mention the name of posterior pituitary hormones along with their functions. 2
   b) Write down the major hormones of glucose homeostasis. What is the physiological role of glucagon? 2
   c) Enumerate the hormones of thyroid gland with their functions. 2

4. a) Briefly discuss the hormonal control of the 21 day estrus cycle with a graphical presentation. 3
   b) List the length of estrus cycle, estrus period and ovulation time of cow, mare, doe and ewe. 2
   c) Write down the physiological feature of a graafian follicle. 1

SECTION-B

5. a) Define tropic hormone. Enlist the tropic hormones with their function. 2
   b) How does the retina transmit information about light-dark exposure to the pineal gland? 2
   c) "Amino acids are important for protein hormone synthesis"- justify the statement. 2

6. a) Define neurotransmitter. List some excitatory, inhibitory, and mixed neurotransmitter. 2
   b) Classify sensory receptors according to a particular form of energy with examples. 2
   c) Differentiate between sympathetic and parasympathetic nervous system. 2

7. a) What is the precursor of Catecholamine? Write down the biological functions of Catecholamine. 2
   b) Why is cortisol known as stress hormone? Write down the functions of hormone that involved in sodium metabolism. 2
   c) Write down the hormone of calcium homeostasis. What are the physiological roles of parathormone? 2

8. a) How do sound travel from tympanic membrane to your auditory nerve? Sketch it. 2
   b) Which type of papillae of a cow contain tastebuds in the tongue. How does tongue send taste signal to the brain- show in a sketch. 3
   c) Define mating-induced ovulation with example. 1

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination-2023
Course Title: Platyhelminthes and Malacology (Theory)
Course Code: PLM-201
Full Marks: 70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any **five (5)** questions from each section. Use separate answer script for each section. Fractions of the questions are encouraged to answer together.)

SECTION-A

1. a) Define 'symbioses'. Describe 'parasitism', 'commensalism' and 'mutualism' with appropriate examples. 4
   b) Differentiate any **three (3)** of the following:- $3\times1=3$
   i) Intermediate host and vector ii) Carrier and reservoir host
   iii) Erratic and accidental parasite iv) Transport and paratenic host

2. a) Define anthelmintic. Enlist the properties of an ideal anthelmintic. 3
   b) How does anthelmintic resistance develop and what measures could be taken to prevent it. 4

3. a) Illustrate the developmental stages of a typical digenetic trematode. 4
   b) Briefly describe the pathogenic significance of 'Paramphistomiasis' in cattle 3

4. a) What is malacology? Describe the biology of freshwater snails. 4
   b) List the cestodes and trematodes of animals with their specific snail hosts. 3

5. a) Enlist five (5) important cestodes of dogs. Describe the life cycle and pathogenic significance of *Diphyllobothirum latam* infestation in dogs. 4
   b) How does 'pork tapeworm' cause 'Neurocysticercosis' in man? 3

6. Write short notes on any **two (2)** of the following:- $3.5\times2=7$
   i) Paragonimiasis ii) Snoring disease iii) Hydatidosis iv) Bottle jaw

SECTION-B

7. a) Define metacestode? Classify metacestode with appropriate examples. 4
   b) Describe the life cycle of *Moniezia* species. 3

8. a) Briefly discuss the mode of parasitic transmission with appropriate example in each case. 4
   b) How will you diagnose the following parasitic infections in a parasitology laboratory? $3\times1=3$
   i) Fascioliasis ii) Dipylidiasis iii) Schistosomiasis

9. a) Write down the name, genera and infective stages of the following family. $4\times1=4$
   i) Fascioliidae ii) Paramphistomatidae iii) Dicrocoeliidae iv) Schistosomatidae
   b) Sketch the life cycle of *Prosthogonimus ovatus* in poultry. 3

10. a) List the cestodes and trematodes of poultry. Briefly describe the life cycle and pathogenic significance of *Davainea proglottina* infestation in poultry. 4
    b) How will you identify the adult stage of the following parasites? $3\times1=3$
    i) *Diphyllobothrium latum* ii) *Anoplocephala magna* iii) *Eurytrema pancreaticum*

11. a) What is immunity? Classify immunity with appropriate example. 4
    b) Briefly describe the factors affecting host specificity in parasitic infection. 3

12. a) Classify parasitic zoonosis with examples. Enlist zoonotic platyhelminths. 4
    b) Design appropriate measures to prevent parasitic zoonosis. 3

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination'2023
Course Title: Environmental Hygiene & Bio-security (Theory)
Course Code: EHB-201
Full Marks: 35, Time: 2 Hours

(Figures in the right margin indicate full marks. Answer **three (3)** questions from each section where question **number 5** is compulsory. Use separate answer script for each section. Fractions of the questions must be answered together.)

SECTION-A

1. a) Define health. State the scope of "Animal Hygiene". 4.0
   b) Enumerate the factors responsible for the unsanitary condition of soil. 2.0

2. a) Enlist the effects of surface configuration of soil on health of animals. 2.0
   b) Define humus and hygros capacity. Enlist the steps for the sanitary improvement of the soil 4.0

3. a) Tabulate the objectives and corresponding methods of water purification. 2.0
   b) List the approximate daily allowance of water for different animals. 2.0
   c) What are the properties of hygienically pure water? 2.0

4. a) What are the measures to be taken to prevent "Acid Raining"? 4.0
   b) Sketch the "Oxygen cycle" in the environment. 2.0

SECTION-B

5. a) Enlist the methods of bacteriological examination of air sample. 1.0
   b) Write down the effect of vitiated air upon health of dairy cows. 2.0
   c) Briefly describe the methanogenesis process. 2.0

6. a) Draw and define different types of well. 2.0
   b) Describe the artificial methods of treatment of sewage. 4.0

7. a) Sketch different methods of disposal of carcass. 3.0
   b) What are the measures should be taken for prevention and control of infectious diseases? 3.0

8. a) Define bio-security. State different bio-security levels with examples. 3.0
   b) Write down the following short notes: 1.5×2=3
   i. Impurities of air ii. Nitrogen cycle

Chattogram Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination-2023
Course Title: Animal Breeding
Course Code: ABR-301 (T)
Full Marks: 35, Time: 2 Hours

(Figures in the right margin indicate full marks. Answer **three (3)** questions from each section where question number **1** is compulsory. Use separate answer script for each section. Fractions of the questions are encouraged to answered together.)

SECTION-A

1. a) What is Animal Breeding? State the objectives of Animal Breeding. 1.0
   b) Indicate the origin and domestication of cattle, sheep and buffalo. 3.0
   c) What is economic trait in livestock? Distinguish between quantitative and qualitative traits. 1.0

2. a) Distinguish between gene frequency and genotype frequency. 1.5
   b) What are the factors responsible for modifying gene frequency in a population? Briefly describe any two of them. 3.0
   c) Write down the conditions for idealized population. 1.5

3. a) What is realized heritability? Write down the importance of heritability in animal improvement. 2.5
   b) How will you calculate h^2 value using selection experiment? 2.5
   c) Indicate the factors that changes the heritability value estimate. 1.0

4. a) Define selection. Explain that "selection does not create new gene just it changes the gene frequency of a trait". 2.0
   b) Construct selection index using the selection criteria under the breeding objective to increase milk production from available cattle in Bangladesh. 4.0

SECTION-B

5. a) Differentiate inbreeding from crossbreeding. 1.0
   b) Explain specific and rotational crossing with their application in animal improvement. 3.0
   c) Give a sketch for selection of breeding bull using progeny testing selection scheme. 2.0

6. a) Explain the term heterosis. State different types of heterosis with their application. 2.0
   b) Proof that heterosis value of F_1 generation is double from the heterosis value of F_2 generation. 3.0
   c) State the role of cattle breeding society for improvement of different dairy related traits. 1.0

7. a) Explain the term selection intensity and reliability. 1.0
   b) Describe how will you estimate response to selection per generation for milk yield using bull to bull and bull to cow pathways. 4.0
   c) State the term genetic lag. 1.0

8. Write short notes **(any three)** to the followings: 3×2=6
   a) Breeding value
   b) Genotype × environment interaction
   c) Inbreeding depression
   d) Cattle breeding policy in Bangladesh

Chattogram Veterinary and Animal Sciences University
DVM 2nd year 1st Semester Final Examination- 2023
Course Title: Animal Genetics (Theory)
Course Code: AGN-201
Full Marks: 70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer **three (3)** questions from each section where question number **1 and 5** are compulsory. Use separate answer script for each section. Fractions of the questions are encouraged to answer together.)

SECTION-A

1. a) Explain the term gene, genome, and heredity. 3.0
   b) Briefly state the chronological development of genetics during the genomic era. 5.0
   c) Explain the branches of genetics. 3.0

2. a) Explain the Mendel's law of segregation with an example in animal. 4.0
   b) Differentiate incomplete dominance and co-dominance from each other with example. 4.0
   c) Elucidate lethal gene action in poultry. 4.0

3. a) Define linkage. Distinguish between linked genes and syntenic gene. 3.0
   b) Explain the term interference and co-incidence with their importance in genetics. 4.0
   c) Explain the term gene mapping. How do you estimate the map distance between two genes? 5.0

4. a) What is genetic disorder? Enlist 5 (five) important genetic disorders in animals with their causes and remedies. 4.0
   b) Distinguish between epistasis and hypostasis. 3.0
   c) Explain the phenomenon of dominant epistasis with an example in dog. 5.0

SECTION-B

5. a) Outline a model of structural gene. 3.0
   b) Explain the term gene expression and gene regulation. 4.0
   c) Describe in brief how a mature RNA is produced after transcription. 4.0

6. a) Illustrate eukaryotic sex chromosomes in details. 4.0
   b) Describe the genetic mechanism of sex determination in chicken. 3.0
   c) Explain the inheritance of multiple alleles with an example in small animal(s). 5.0

7. a) What is gene mutation? How do the gene mutations arise? 4.0
   b) Classify gene mutation based on the genes in terms of gene action and protein products. 4.0
   c) State the classification of single gene disorders. 4.0

8. Write short notes on any **4 (four)** to the followings $4\times3=12$
   a) Aneuploidy
   b) Insertion and deletion
   c) Mechanism of induced mutation
   d) Post translational modification
   e) Sex limited and sex influence traits