

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination 2024
Course Title: Animal Nutrition (Theory)
Course Code: 0811-ANT-201
Full Marks: 70, Time: 3 Hours

Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section, where questions No. 1 and 5 are compulsory. Use separate answer script for each section. Fractions of the questions must be answered together.

SECTION-A

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|----|----|--|-----|
| 1. | a) | Define carbohydrate, TDN and nutrition. Why the moisture and ash need to be omitted from the equation of TDN? | 2+1 |
| | b) | How does rumen gradually develop in a calf? Which major factors substantially influence rumen development? | 2+2 |
| | c) | Illustrate the flow-chart of crude fibre digestion in the ruminants. | 4 |
| 2. | a) | Elaborately discuss the rumen environment. | 4 |
| | b) | How does digesta mix in rumen? What are the alternate sites of microbial digestion for the non-ruminant? | 2+2 |
| | c) | What strategies can be used to optimize starch and RDP utilization in high-producing dairy cows without compromising rumen function? | 4 |
| 3. | a) | Define chylomicron? Why do fats provide more energy than carbohydrates in animal body? | 1+3 |
| | b) | Briefly discuss the process of lipolysis in rumen. | 4 |
| | c) | Explain the purpose of the emulsification of fats? What is the role of bile salts and pancreatic lipases in lipid digestion? | 2+2 |
| 4. | a) | Discuss the impact of crude fiber particle size and physical form on rumination time, saliva secretion, and buffering capacity? | 4 |
| | b) | Define calf-starter and milk replacer? Why they are inevitable? | 2+2 |
| | c) | How does forage to concentrate ratio influence the acetate-to-propionate ratio, and what are the implications of them on milk fat synthesis? | 4 |

SECTION-B

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|----|----|--|-----|
| 5. | a) | Discuss the characteristics of a balanced ration. List the steps for conducting conventional digestibility trial of 'German' grass. | 1+2 |
| | b) | Formulate balanced ration for a Holstein-Friesian cow of 300 kg body weight and yielding 15 kg milk/day using conventional feed ingredients. | 8 |
| 6. | a) | Define macro and micro minerals. Mention the deficiency symptoms of macro and micro minerals in ruminant. | 2+2 |
| | b) | How does mineral deficiency affect reproductive performance of dairy cows? | 4 |
| | c) | Why is cobalt considered an essential mineral for ruminants but not for non-ruminants? | 4 |
| 7. | a) | Discuss the effective ways for optimizing urea utilization in ruminant animals. | 4 |
| | b) | How does the balance between RDP and UDP affect microbial protein synthesis, milk yield and overall animal productivity? | 4 |
| | c) | What is the significance of synchronizing carbohydrate and nitrogen availability in the rumen for maximizing animal performance? | 4 |
| 8. | a) | Define physically effective neutral detergent fiber. Discuss the role of methanogens in biohydrogenation pathways. | 2+2 |
| | b) | Interrelate ruminal lipolysis and diversity of microbial ecology. | 4 |
| | c) | Discuss protein-energy synchronization on microbial efficiency. Discuss the metabolic fate of propionate in hepatic gluconeogenesis | 2+2 |

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination-2024
Course Title: Neuro-endocrine and Reproductive Physiology (Theory)
Course Code: 0912NRP201
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 must be answered together.)

SECTION-A

1. a) Define endocrine system and endocrine gland. 1
 b) How do endocrine and nervous system are correlated each other? 2
 c) Describe the mechanism of synthesis of protein hormone? 2

2. a) How do neuron communicate? Draw and label a disynaptic reflex. 1+1=2
 b) List the cells of CNS. Classify the autonomic nervous system. 1+1=2
 c) List the name of cranial nerves that are functionally sensory. Describe the 1+1=2
 mechanism of release of neurotransmitter in synapse.

3. a) List the name of gonadal hormones. 2
 b) List the length of estrous cycle, estrous period, ovulation time and gestation 2
 period of cow and doe.
 c) What is the role of prostaglandin? Mention the different stages of parturition. 1+1=2

4. a) Classify animal on the basis of olfaction. Discuss about the “stereochemical 1+1=2
 theory” of odor discrimination.
 b) List the glands that are found in skin. How does skin regulate body 1+1=2
 temperature?
 c) Mention the parts of ear. Describe the mechanism of hearing. 1+1=2

SECTION-B

5. a) Define neurotransmitter. Classify neurotransmitter with examples. 1+1=2
 b) Discuss the role of G-protein for memory retention. 2
 c) Differentiate between sympathetic and parasympathetic nervous system. 2

6. a) Enumerate the transport of protein hormone and steroid hormone. 2
 b) Sketch the mechanism of synthesis of steroid hormone. 2
 c) “Vasopressin plays an important role during dehydration”-justify it. 2

7. a) Illustrate the rhodopsin cycle. 2
 b) State and describe the general functions of skin. 2
 c) Explain myasthenia gravis. 2

8. a) Define ovarian cycle. How do you recognize the signs of estrous in a goat? 1+1=2
 b) Classify placenta. List the hormones of placenta. 1+1=2
 c) List the hormone of calcium homeostasis. Write down the function of 1+1=2
 parathormone (PTH).

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination-2024
Course Title: Animal Genetics
Course Code: 0511 AGN-201 (T)
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 questions must be answered together.

SECTION-A

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|----|--|-----|
| 1. | a) Define Gene, Genotype, Heredity and Pleiotropy. | 4 |
| | b) Discuss the scope and application of genetics in livestock production. | 4 |
| | c) Do you agree with “man is unsuitable material for genetic experiment”? Justify your opinion. | 3 |
| 2. | a) Define sex linked genes and holandric genes. | 2 |
| | b) Briefly explain sex limited and sex influenced traits with suitable example in animal. | 5 |
| | c) Describe genic balance mechanism of sex determination in drosophila. | 5 |
| 3. | a) Differentiate between X and Y chromosomes. | 2 |
| | b) Briefly describe different types of chromosomal aberration. | 5 |
| | c) Briefly describe the CIB method for detection of sex-linked lethal mutation. | 5 |
| 4. | a) What is central dogma? Write down the names of protein and enzyme involved in DNA replication with their functions. | 1+3 |
| | b) What do you mean by RNA splicing? Differentiate between transcription and translation. | 2+2 |
| | c) What are the characteristics of genetic materials? Mention the “Chargaff’s rules”. | 2+2 |

SECTION-B

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|----|---|-----|
| 5. | a) Define genetic code, codon and anticodon? | 3 |
| | b) What are the conditions need to be fulfilled for law of segregation and law of independent assortment? | 4 |
| | c) Explain with an example how classical 9:3:3:1 ratio may be converted into 12:3:1. | 4 |
| 6. | a) What is gene mutation? How do gene mutation occur in animal? | 1+2 |
| | b) “Most mutations are neither harmful nor helpful”- Justify it | 4 |
| | c) Define genetic disorder. List ten important genetic disorders in animals with their causes. | 1+4 |
| 7. | a) What is genetic map? How will you construct genetic map? | 1+3 |
| | b) How independent assortment differs from linkage? What is the significance of genetic mapping? | 2+2 |
| | c) Draw and label the double helix structure of DNA and state its properties. | 4 |
| 8. | a) Define multiple allelism. Write down the characteristics of multiple alleles. | 1+3 |
| | b) Define gene expression. Explain the environmental effect of gene expression. | 1+3 |
| | c) What is co-dominant gene action? Enumerate co-dominant gene action with an example in cattle. | 1+3 |

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination 2024
Course Title: Environmental Hygiene and Biosecurity (Theory)
Course Code: 0841-EHB-201 (T)
Full Marks: 35, Time: 2 Hours

Figures in the right margin indicate full marks. Answer any 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

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|----|--|-----|
| 1. | a) Define animal hygiene. State the importance of animal hygiene. | 1+2 |
| | b) Briefly describe auto-purification of soil. | 3 |
| 2. | a) Write down the properties of hygienically pure water. | 1 |
| | b) Briefly discuss the artificial process of water purification. | 2 |
| | c) Mention the common dissolved impurities of water. | 3 |
| 3. | a) Describe the principles of waste disposal. | 3 |
| | b) Suppose a cow died of black quarter, which method would you follow for the disposal of carcass? | 3 |
| 4. | a) Write down the effect of vitiated air upon health of animals. | 2 |
| | b) Define acid rain. What measures should be taken to prevent acid rain? | 1+1 |
| | c) Describe the changes of composition of air in an inhibited space (stable air). | 2 |

SECTION-B

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|----|---|---|
| 5. | a) Mention five important diseases related to unhygienic AI with their causal agents. | 2 |
| | b) Classify disinfectants with examples. | 3 |
| 6. | a) Write down the fundamental principles of transportation of animal. | 3 |
| | b) Briefly describe the procedure of fumigation in a poultry shed. | 3 |
| 7. | a) Define biosecurity and biosafety. | 1 |
| | b) What biosecurity measures are practiced in a poultry farm? | 3 |
| | c) List the important components of disease control and eradication campaign. | 2 |
| 8. | a) Write down the procedure of collection and storage of liquid manure. | 3 |
| | b) Briefly describe the radiation hazards on animal health. | 3 |

Course Title: Platyhelminthes & Malacology (Theory)**Course Code: 0511-PLM-201 (T)****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

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|----|----|---|-----|
| 1. | a) | Define parasite and host. Classify parasites with examples. | 1+3 |
| | b) | Mention the significance of parasitology and malacology in veterinary science. | 3 |
| 2. | a) | Briefly describe the developmental stages of a typical digenetic trematode. | 3 |
| | b) | Enlist ten trematodes of veterinary importance with their host and location. | 2 |
| | c) | Define immunity. Mention the factors breaking down the parasitic immunity. | 1+1 |
| 3. | a) | Compare morphological features of Pseudophyllidean and Cyclophyllidean. | 3 |
| | b) | How anthelmintic resistance develop? Write down its preventive measures. | 2+1 |
| | c) | Define and classify zoonosis. | 1 |
| 4. | a) | What are the striking differences in the life cycle of 'liver fluke' and 'blood fluke'? | 3 |
| | b) | Briefly describe 'pipe stem liver' and 'cercarial dermatitis'. | 3 |
| | c) | What is the difference between Fasciola and Paramphistomum eggs? | 1 |
| 5. | a) | Define Malacology. Enlist the names of the freshwater snails which acts as intermediate hosts of trematodes of veterinary importance. | 3 |
| | b) | Write down the importance of snail in veterinary science. | 2 |
| | c) | Mention general morphological features of <i>Lymnaea sp.</i> | 2 |
| 6. | a) | Briefly explain mutualism and symbiosis. | 3 |
| | b) | Distinguish between <i>Moniezia expansa</i> and <i>Moniezia benedeni</i> . | 3 |
| | c) | Write five important control measures of parasitic infection in a herd. | 1 |

SECTION-B

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|-----|----|---|-----|
| 7. | a) | What is anthelmintic? Mention the ideal characteristics of anthelmintics. | 1+2 |
| | b) | Sketch the life cycle of <i>Taenia saginata</i> with its pathogenesis of metacestode stage. | 4 |
| 8. | a) | 'Larval stages of cestodes are more significant than adults' - Explain it. | 3 |
| | b) | Briefly describe about Hydatidosis. | 4 |
| 9. | a) | Sketch the life cycle and pathology of Dipylidium infection in dog. | 3 |
| | b) | Distinguish the following terms with examples:
i) facultative and obligatory parasite ii) carrier and reservoir host
iii) histozoic and coelozoic parasite iv) superinfection and autoinfection | 4 |
| 10. | a) | Enlist different cestodes under the family Taenidae with their metacestodes, host and location. | 3 |
| | b) | Write down the scientific name of following parasites:
i) lancet fluke, ii) liver fluke (deer), iii) Chinese liver fluke iv) blood fluke (cattle). | 2 |
| | c) | How an egg of tape worm released from gravid proglottid? | 2 |
| 11. | a) | What do you mean by molluscicide? | 2 |
| | b) | Write down the name of body parts of an adult cestode with the morphologic features of a mature proglottid. | 3 |
| | c) | How do you diagnose the following parasitic infection in laboratory?
i) Fascioliasis ii) Paramphistomiasis iii) Moneziasis iv) Dyphyllobothriasis | 2 |
| 12. | a) | List the trematodes and cestodes of poultry. Briefly sketch the life cycle of <i>Echinostoma revolutum</i> in poultry | 2+2 |
| | b) | Write down the morphology, life cycle and pathologic significance of <i>Davainea proglottina</i> in chicken. | 3 |

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination 2024
Course Title: General Microbiology (Theory)
Course Code: 0841 - GMC-201 (T)
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 must be answered together.

SECTION-A

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|----|---|-----|
| 1. | a) Name scientist (s) for the following contributions in the field of Microbiology:
i) Germ theory of disease ii) Gram staining iii) Aseptic surgery iv) Antibiotic therapy
v) Fermentation and sterilization vi) Father of Microbiology. | 6 |
| | b) State Koch's postulates. | 1 |
| 2. | a) Draw and label a typical bacterium. | 4 |
| | b) Classify bacteria based on cellular morphology and arrangement with example. | 3 |
| 3. | a) Distinguish between sterilization and disinfection. | 1 |
| | b) List the procedure of moist heat sterilization. Why Tyndalization or ultra-filtration is sometimes preferred for the sterilization of bacteriological media/preparation instead of autoclaving? | 2+4 |
| 4. | a) Enlist the factors that make a bacteria pathogenic. | 4 |
| | b) Differentiate endotoxin from exotoxin. | 3 |
| 5. | a) Describe the bacterial growth curve. | 5 |
| | b) List the methods of killing and inhibiting bacteria applied in microbiology laboratory. | 2 |
| 6. | a) Describe the function of enzymes required for replication of DNA in bacteria. | 3 |
| | b) Differentiate point mutation from deletion mutation in bacteria. Why mutation can sometimes be harmful for bacteria? | 2+2 |

SECTION-B

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|-----|--|-----|
| 7. | a) Classify bacteria based on flagellar distribution and relation with oxygen for growth. | 4 |
| | b) Briefly describe the nutrient requirement of microbial growth? | 3 |
| 8. | a) Enumerate the ways of transmission of infectious agents to susceptible animal through inhalation. | 3 |
| | b) Describe the process of conjugation in genetic recombination of bacteria. | 4 |
| 9. | a) Define bacterial genome, genetic code, anticodon and non-sense codon. | 2 |
| | b) Differentiate between asexual and sexual reproduction of fungi. | 5 |
| 10. | a) Differentiate innate/non-specific host defense mechanism from specific/adaptive host defense mechanism. What are the components of first layer and second layer of innate host defense mechanism? | 1+2 |
| | b) Summarize the functions performed by macrophage in host defense mechanism. | 4 |
| 11. | a) Describe clinical and sub-clinical infection. | 3 |
| | b) Briefly explain animal sources of infectious agents. | 4 |
| 12. | a) Classify bacteriological media. | 4 |
| | b) Describe the influence of P ^H on growth of bacteria. | 3 |

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) | Define general pathology and clinical pathology. Briefly describe the purposes of studying pathology? | 1+2 |
| | b) | Mention the contributions of Cornelius Celsus, John Hunter, Aristotle and Ptolemy. Write down the humoral theory of Hippocrates. | 2+2 |
| 2. | a) | Define cell death and cell injury. Write down the pathogenesis of hypoxic cell injury in sketch form. | 1+3 |
| | b) | What is heterolysis? Write down the gross characteristics of dead tissues. | 1+2 |
| 3. | a) | Define Fatty change. Describe the basic mechanisms and gross lesions of fatty change in liver. | 1+4 |
| | b) | Enlist the conditions of empty spaces found in cytoplasm of a cell. How do you differentiate them? | 1+1 |
| 4. | a) | What types of necrosis is found in liver of poultry infected by fowl cholera? Write down its etiology and pathology. | 1+2 |
| | b) | Briefly describe the possible outcomes of dead tissue. | 3 |
| | c) | Define metaplasia and anaplasia. | 1 |
| 5. | a) | Describe the gross and microscopic lesions of moist gangrene | 3 |
| | b) | Define Infarct. What types of infarct are found in following organs:
i) heart ii) spleen iii) brain iv) kidney | 1+2 |
| | c) | “Amputation of the gangrenous part is necessary to preserve patient’s life”- Explain it. | 1 |
| 6. | a) | Write down the causes and pathology of dystrophic calcification. | 3 |
| | b) | Differentiate melanoblast from melanophage by DOPA test. | 2 |
| | c) | Name the benign and malignant neoplasms of skeletal muscle, blood vessels, hepatocytes and lymphoblast. | 2 |

SECTION-B

- | | | | |
|-----|----|---|-----|
| 7. | a) | Briefly describe the in vivo properties of neoplastic cells. | 4 |
| | b) | Differentiate benign from malignant neoplasms in a tabular form. | 3 |
| 8. | a) | Write down the gross and microscopic lesions of caseation and liquefaction necrosis. | 4 |
| | b) | Define anthracosis. Write down the causes and pathology of anthracosis. | 1+2 |
| 9. | a) | Define rigormortis. How do you identify different stages of rigormortis by examining the left ventricle? | 1+2 |
| | b) | Briefly write the causative mechanisms of fat necrosis. | 2 |
| | c) | Define and classify gout with examples. | 2 |
| 10. | a) | Define jaundice. Write down the causes and pathogenesis of hemolytic and toxic jaundice. | 1+4 |
| | b) | Define and classify hypertrophy with appropriate examples. | 2 |
| 11. | a) | Sketch the mechanism of photosensitization. | 2 |
| | b) | Sketch the mechanism of brown induration of lungs. | 2 |
| | c) | Write down the causes of developmental anomalies in animals with examples. | 3 |
| 12. | a) | Define and classify amyloidosis. Write down the gross and microscopic lesions of amyloidosis. | 1+3 |
| | b) | Differentiate necrosis from postmortem autolysis in a tabular form on the basis of gross and microscopic lesions. | 3 |

Chattogram Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination 2024
Course Title: Zoo, Wild and Laboratory Animal Management (Theory)
Course Code: 0811-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 No. 5 is compulsory. Use separate answer script for each section. Fractions of the questions must be answered together.

SECTION-A

- | | | | |
|----|----|--|-----|
| 1. | a) | Define ecosystem dynamics. Briefly explain the energy flow in the ecosystem dynamics. | 1+2 |
| | b) | List the national parks and wildlife sanctuaries of Bangladesh with their locations and names of available wild animals. Mention the list of extinct wild animals in Bangladesh. | 2+1 |
| 2. | a) | Relate the stochastic and deterministic causes of the extinction of wildlife. | 3 |
| | b) | Discuss the importance of captive breeding. Briefly explain the process of translocation of captive-bred animals in wild. | 1+2 |
| 3. | a) | Write down the general ethical guidelines for using laboratory animals in research. What do you mean by 'knock-out' mice and 'immune-compromised' mice? | 3 |
| | b) | Discuss the standard operational procedure for management of common laboratory animals. | 3 |
| 4. | a) | Define endangered species? List the extinct vertebrates of Bangladesh. | 1+2 |
| | b) | What are the facilities need to be available in a modern zoo? Write down the general guidelines for management of zoo animals. | 1+2 |

SECTION-B

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|----|----|---|--------|
| 5. | a) | Briefly discuss the ways of environmental enrichment. | 2 |
| | b) | Classify habitat with examples. Describe the indicator species of wildlife with their role in the ecosystem health. | 1+2 |
| 6. | | Mention the adult weight, space recommended, age at sexual maturity, gestation period, litter size and common diseases of rabbit, guinea pig, rat and mice. | 6 |
| 7. | a) | What do you mean by ecological succession? Briefly discuss the intra and inter specific relationship of biotic components of the environment. | 1+2 |
| | b) | Discuss the importance of wildlife conservation on protection of biodiversity. | 3 |
| 8. | | Differentiate following terms (any six): | 6×1= 6 |
| | a) | Flora and fauna | |
| | b) | Ecology and environment | |
| | c) | <i>In situ</i> and <i>ex situ</i> conservations | |
| | d) | Rainforest and mangrove forest | |
| | e) | Sanctuary and biosphere reserve | |
| | f) | Biodiversity and climate change | |
| | g) | Animal enrichment and behavioral stimulation | |