

Chattogram Veterinary and Animal Sciences University

DVM 1st year 2nd Semester Final Examination-2021

Course Title: Biochemistry

Course code: BIC-102(T)

Full Marks: 70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer Three (3) question 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 biochemistry? Briefly describe the roots of biochemistry. 3
- b) What is biomolecules? Enumerate the elements of life with specific roles. 3
- c) Draw a cell and show the supramolecular complexes, macromolecules and monomeric unit. 3
- d) Briefly describe the scope of biochemistry in veterinary science. 2
2. a) "Fat are storage form of lipids"- explain 3
- b) "Unsaturated fatty acids are preferred over saturated ones" – what does biochemistry teaches? 4
- c) Define rancidity of fat. How the oxidation of fat is related to its rancidity. 2+3=5
3. a) Describe the components of electron transport chain and discuss the oxidation of NADH. 5
- b) What is β -oxidation? Briefly describe the β -oxidation of stearic acid. 4
- c) What are ketone bodies? Schematically show the biosynthesis of ketone bodies. 3
4. a) Write short note on any four 4x3=12
 - i) Glycogenic and ketogenic amino acid. ii) Ribosome and Golgi complex. iii) Central dogma of molecular biology. iv) Griffith's experiment. v) . vi) TCA cycle vi) Anapleorotic reactions.

SECTION-B

5. a) What is biocatalyst? Classify enzymes with examples. 3
- b) Enumerate the factors affecting enzyme activity. Briefly describe the effect of temperature, p^H and activators 3
- c) What is coenzyme? Write down the functions of the following: i) TPP. ii) FMN. iii) PLP. iv) CoA 3
- d) Write down the diagnostic applications of the enzymes 2
6. a) Why did DNA evolve as genetic material? 1
- b) Define the following terms: i) Gene. ii) Genome. iii) PCR. iv) Primer. v) Denaturation. vi) metabolomics 0.5x6=3
- c) Why DNA is more stable than RNA-Explain. 2
- d) Differentiate between Prokaryotic and Eukaryotic translation. 3
- e) Briefly describe the replication in eukaryotes. 3
7. a) Write down the salient features of transamination. Define transamination, deamination and decarboxylation. 3+3=6
- b) Ammonia is not just a waste product of nitrogen metabolism but play roles in synthesis of many compounds in the body- explain. 2
- c) What is NPN? Blood urea nitrogen is half of the NPN-explain. 2
- d) Write down the specialized products formed by the following amino acids: i) Glycine ii) Tyrosine iii) Tryptophan iv) Methionine. 0.5x4=2
8. a) Enumerate the name of 30 small molecules which are sometimes called the alphabets of biochemistry 3
- b) Define the following terms: i) Glycolipids ii) Tautomerization iii) Iodine value iv) Salting out v) PUFA vi) Mucopolysaccharide 0.5x6=3
- c) Write down the function of the following: i) Hyaluronic acid ii) Anti-freeze glycoproteins iii) Glycogen iv) Eicosanoids v) Choline vi) Vitamin -E 0.5x6=3
- d) Show the difference among amylose, amylopectin, cellulose and chitin. 3

Chattogram Veterinary and Animal Sciences University

DVM 1st year 2nd Semester Final Examination 2021

Course Title: Avian Anatomy (Theory)

Course Code: AVA-102 (T)

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) What do you mean by pneumatic bone? Name the pneumatic bones of birds and mention their anatomy. 3
b) Enlist the air sacs of chicken. 1
c) Describe the anatomy of the thoracic air sac with figure. 2
2. a) What are the special features of avian digestive system those are anatomically differ from mammals? 2
b) Describe about the crop of the avian species. 1
c) Enlist the parts of oviduct in a chicken. How these parts are contributing in egg formation? (1+2)=3
3. a) How will you differentiate avian kidney from the mammalian kidney? 3
b) What are the key features of skull in the avian species? 2
c) What is furcula? How the furcula is attached with keel bone? (0.5+0.5)=1
4. a) Write down the location of heart in bird. Briefly describe topographic anatomy of clinically important major superficial veins in birds. (1+2)=3
b) Why preen gland is important? 2
c) Enlist the species that lack preen gland. 1

SECTION-B

5. a) Briefly describe the anatomy of stomach of a chicken. 3
b) Write a short note on pancreas of a chicken. 2
6. a) Draw and label the female genital system of a hen. 3
b) Illustrate the anatomy of the testis of a cock. 3
7. a) Enumerate the anatomy of the liver of a chicken. 3
b) Briefly describe the anatomy of the esophagus of chicken. 3
8. a) Mention the names and location of the clinically important two veins of a birds. 2
b) Mention the location of the sciatic nerve in the thigh region of a bird. 1
c) List the anatomical structures those are related to the lightening of body weight and helping for flying. 2
d) Write down the shape and location of a lung of a chicken. 1

Chattogram Veterinary and Animal Sciences University

DVM 1st year 2nd Semester Final Examination-2021

Course Title: Systemic Physiology

Course code: SPH-102(T)

Full Marks: 70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer Three (3) question 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) List the name of different parts of digestive tract of a chicken. Mention the functions of gizzard. 2
b) Sketch the mechanism of HCl secretion from parietal cells of stomach. Write down the physiological roles of HCl in food digestion. 3
c) Show the differential points of calf's digestion from cow's digestion. 3
d) Describe the mechanism of volatile fatty acids (VFA's) production from different types of carbohydrates in compound stomached animals 3
2. a) What is myofibril and myofilaments? Briefly discuss the role of Ca⁺⁺ (calcium) in skeletal muscle contraction. 4
b) Enlist the excretory organs. How does the excretory organs regulate the body temperature? 4
c) Explain the heat conservation and heat production mechanism of sheep during extreme cold. 4
3. a) List the hormones that work on kidney. How does ADH regulate urine formation in a cow? 4
b) Briefly discuss the mechanism of urine formation. 4
c) How different molecules are reabsorbed in proximal tubules. 4
4. a) Write short note on any four 4x3=12
i) Oestrous behavior of a cow. ii) Rumination. iii) Buffer system of body. iv) Acid-base balance. v) Prenatal growth. vi) Hypoxia

SECTION-B

5. a) Write down the definition and steps of respiration. 3
b) Enlist the factors which determine the diffusion of respiratory gases through pulmonary membrane. Explain any one type of them. 3
c) Describe the mechanism of inspiration in cow. 2
d) Distinguish between mammalian respiration and avian respiration. 3
6. a) Define "mixed micelle" and "chylomicron". Write down the mechanism of formation and secretion of chylomicron by intestinal mucosal cells. 3
b) Write down the p^H of saliva, gastric juice, pancreatic juice, bile, succus entericus and rumen. 3
c) Differentiate between membranous phase digestion and tubular phase digestion. 3
d) Describe the mechanism of protein digestion in simple stomach animal. 3
7. a) List the heat insulators for the body. Mention the rectal temperature of dairy cow, goat, dog and chicken. 3
b) Sketch the mechanism of fever in homoeothermic animals. 3
c) What are the sensory modalities? Mention the importance of smell of a bull. 3
d) Write down the principal means of acclimatization to high altitude. 3
8. a) Why will you study animal behavior? List the 5 principles of animal welfare. 3
b) How do pheromones help in eliciting sexual, communicating and territory marking in animals? 3
c) State the adaptive characteristic features of giraffe and camel in their respective environment. 3
d) Describe the estrous behaviors of mare, cow and doe. 3

Chattogram Veterinary and Animal Sciences University
DVM 1st year 2nd Semester Final Examination-2021
Course Title: Fodder Production (Theory)
Course Code: FPR-102 (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 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) What is hay and silage? Write down the factors that affect the nutritive value of hay. | 1+2 |
| | b) Illustrate the seed rate, time and methods of sowing, fertilizer doses and yield of Guinea, Jumboo and Berseem. | 3 |
| 2. | a) What do you mean by soil salinity and how can you reduce soil salinity? Briefly illustrate the components of soil. | 2+1 |
| | b) Classify soil tract of Bangladesh on the basis of origin and quality. Discuss briefly about two soil tracts. | 3 |
| 3. | a) Define weed. Indicate the beneficial effects of weed. | 1+2 |
| | b) Discuss briefly how you will control weed from a fodder field/plot. | 3 |
| 4. | a) Write down briefly the cultivation procedure of German, Maize and Para grasses. | 4 |
| | b) State the prospects of perennial fodder production in the coastal and hilly areas of Bangladesh. | 2 |

SECTION-B

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|----|--|-----|
| 5. | a) Define legume and non-legume fodder with example. Give the scientific name of the following fodders: (i) Napier, (ii) Cowpea, (iii) Maize and (iv) Oat. | 1+1 |
| | b) Write down the characteristics and qualities of legume fodder. | 3 |
| 6. | a) What do you mean by irrigation? Why irrigation is necessary for fodder production in Bangladesh? | 1+2 |
| | b) Indicate the name of different irrigation methods and discuss two methods of surface irrigation suitable for fodder cultivation. | 3 |
| 7. | a) What do you mean by pasture and stocking rate? | 2 |
| | b) List the different grazing system and discuss about three grazing system which are suitable in Bangladesh. | 4 |
| 8. | Write short notes (any three) of the following: | 3x2 |
| | a) Biochemical changes during ensiling process. | 6.0 |
| | b) Geo-climatic zones in Bangladesh. | |
| | c) Composition and nutritive value of fodder/forage. | |
| | d) Fertilizer vs compost. | |

Chattogram Veterinary and Animal Sciences University

DVM 1st year 2nd Semester Final Examination 2021

Course Title: Histology and Embryology-II (Theory)

Course Code: HEM-102 (T)

Full Marks: 70; Time: 3 Hours

(Figures in the right margin indicate full marks. Answer Five (5) 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) How do you histologically differentiate renal cortex from renal medulla? 3
b) Draw a figure of glomerulus. 1
c) Write down the histology of Juxtaglomerular apparatus 3
2. a) Write down the cells and different layers of cerebrum. 3
b) What is CSF? Draw and label the cross section of a spinal cord. 4
3. a) Enlist the name of blood vessels. 1
b) What are the histological differences between artery and vein in a cow? 3
c) Write down the histology of different types of blood capillary with example. 3
4. a) Name the alveolar cells of lung. 1
b) Write down the histological differences between bronchi and bronchiole. 3
c) Enumerate the histological structures of "blood-air-barrier in lung". 3
5. a) What is the largest organ of the body? Write down the histology of skin. 4
b) Briefly describe the histological structures of cornea. 3

SECTION-B

6. a) List the name of circulation in the body. 1
b) Illustrate the fetal circulation. 3
c) Define and classify the placenta with example. 3
7. a) Give the histology of gastric glands. 4
b) Draw and label the histology of pancreas. 3
8. a) Briefly describe the impulse conducting system of heart. 3
b) Give the histology of spleen. 3
c) What do you mean by portal system? Classify with example. 1
9. a) Draw and label the histology of oesophagus. 4
b) Give the histological differences among parotid, sub-mandibular and sub-lingual salivary gland. 3
10. a) Draw and label the histology of isthmus of fallopian tube. 3
b) Write down the histology of testis. 4
11. a) Draw and label the graafian follicle of a cow. 3
b) What are the primary sex organs of reproductive system? 1
c) Name the layers of uterus. Write down the histology of uterus. 3
12. a) How do you differentiate among different parts of large intestine under microscope? 4
b) What are the papillae of tongue of a sheep? 1
c) Briefly discuss the histology of the intestinal gland. 2

Chattogram Veterinary and Animal Sciences University
DVM 1st year 2nd Semester Final Examination-2021
Course Title: Gross Anatomy-II (Theory)
Course code: GRA-102(T)
Full Marks: 70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any FIVE (5) question 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) Give the anatomical position of the heart of cattle and goat. How the pericardial sac is formed? | 3 |
| | b) Mention the vessels enter and come out from the heart. | 2 |
| | c) Enlist the branches of brachiocephalic trunk. | 2 |
| 2. | a) Draw and label the male genital organs of a bull. | 3 |
| | b) How the spermatic cord is formed? | 2 |
| | c) What is inguinal canal? Mentions the contents of inguinal canal of a bull | 2 |
| 3. | a) What is the lymphatic system? How the lymph is formed and transported? | 2 |
| | b) What is lymphocenter? Enlist the major superficial lymph nodes in a cow with their specific locations. | 2 |
| | c) Write down the anatomy of the thymus of a cow. | 3 |
| 4. | a) Describe the layers and contents of eyeball. | 4 |
| | b) Briefly describe the lacrimal apparatus of eye. | 3 |
| 5. | a) Enlist the cranial nerves with their origin. | 2 |
| | b) Briefly describe the course and distribution of the largest cranial nerves of a bull. | 5 |
| 6. | a) Illustrate the anatomy of ovary of a cow. | 3 |
| | b) Briefly describe the anatomy of the horn and cervix of uterus of a cow. | 4 |

SECTION-B

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| 7. | a) Name the branches of abdominal aorta. Describe the course of celiac artery in a cow. | 6 |
| | b) Name the branches of celiac artery in goat. | 1 |
| 8. | a) Enlist the urinary organs of a cow. | 1 |
| | b) Describe the anatomy of the right kidney of an ox | 6 |
| 9. | Write down the anatomy of the thyroid and adrenal gland. | 7 |
| 10. | a) Draw and label the different parts of ear | 3 |
| | b) Write down the specific structures responsible for hearing and equilibrium. | 2 |
| | c) What is auditory tube? Where it is opened and what's its functions? | 2 |
| 11. | a) Briefly describe the fetal circulation. | 3 |
| | b) What do you mean by portal circulation? Mention its types. How the portal vein is formed? | 4 |
| 12. | Write short notes on followings (any two): | 3.5x2=7 |
| | a) Conjunctiva. | |
| | b) Urinary bladder. | |
| | c) Vagina and clitoris | |