Chattogram Veterinary and Animal Sciences University
DVM 1st year 2nd Semester Final Examination-2023
Course Title: Systemic Physiology
Course Code: 0912-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 end products of ruminal digestion. 3
   b) State the steps involved in volatile fatty acid produced from pyruvate in rumen microbes. 4
   c) Name the zymogen present in digestive juice with their activators and functions. 4

2. a) Draw and label the different layers of blood-air barrier. 4
   b) Briefly discuss the reflex control of respiration in cow. 4
   c) Explain the transport of oxygen and carbon dioxide in blood. 4

3. a) Differentiate among the functions of skeletal, smooth and cardiac muscles in animals. 4
   b) Briefly describe the mechanism of skeletal muscle contraction. 4
   c) Describe the role of the HCO_3^- buffer system in maintaining the blood pH. 4

4. a) Illustrate a typical growth curve of animal. Describe the factors influence the live weight of animals. 1+3=4
   b) Briefly explain how various factors influence the environment and the physiological adaptations of animals. 4
   c) Describe the process by which animal's body counteract to the effects of high altitude environment. 4

SECTION-B

5. a) Describe the role of antidiuretic hormone in regulating water balance in animals. 3
   b) Sketch the mechanism of renin-angiotensin-aldosterone system to maintain optimal blood pressure. 4
   c) Differentiate among filtration, reabsorption and secretion in the kidney. 4

6. a) Define applied ethology. Enlist the behavior indicators of poor welfare. 1+3=4
   b) List the sensory modalities. Mention the importance of smell of a bull. 1+3=4
   c) Enlist the common vices of poultry, cow, sheep and horse. 4

7. a) Briefly discuss the chemical regulation of heat production in cow. 4
   b) Explain the mechanisms of heat gain in animal body. 4
   c) Differentiate between- 4
      i) Core temperature and shell temperature
      ii) Homeothermic and poikilothermic animal

8. a) Describe the composition and functions of gastric juice. 4
   b) Explain the protein digestion and absorption in dog. 4
   c) Enlist the functions of crop, proventriculus, gizzard and cecum of chicken. 4

Chattogram Veterinary and Animal Sciences University
DVM 1st year 2nd Semester Final Examination- 2023
Course Title: Avian Anatomy
Course Code: 0912-AVA -102 (T)
Full Marks: 35, Time: 2 Hours

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

SECTION-A

1.	a) Write down the vertebral formula of chicken.	1.0
	b) Briefly describe the anatomy of chicken rib.	3.0
	c) Enlist the key features of the skull in a bird.	2.0
2.	a) Draw and label the digestive system of a chicken.	3.0
	b) Enlist the salivary glands of a chicken with their location.	3.0
3.	a) Enlist clinically important veins in a bird with their location.	2.0
	b) Mention the location of preen gland in a bird.	2.0
	c) Describe the anatomy of syrinx.	2.0
4.	a) Explain the urinary pathway in a bird.	3.0
	b) Enlist the major lymphatic organs of bird with their anatomical location.	3.0

SECTION-B

5.	Describe the structures involved in egg formation in a bird with a labelled diagram.	5.0
6.	a) Briefly describe the avian nephron.	3.0
	b) Mention the location and structures of copulatory apparatus in a duck.	3.0
7.	a) Enlist the integumentary derivatives of a chicken.	2.0
	b) Draw and label the urogenital system of a bird.	2.0
	c) Briefly describe the bursa of Fabricious.	2.0
8.	a) Enlist the organs of immune system in a bird.	2.0
	b) Give the name of flight muscles in a bird.	2.0
	c) Compare avian skeleton with mammalian skeleton.	2.0

Chattogram Veterinary and Animal Sciences University
DVM 1st year 2nd Semester Final Examination 2023
Course Title: Histology and Embryology-II
Course Code: 0912-HEM -102 (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 are encouraged to answer together)

SECTION-A

1.	a) Describe the histological structures of the ruminant oesophagus.	5.0
	b) Compare the histology of the mandibular and sublingual salivary glands.	2.0
2.	a) Illustrate the histology of the trachea, bronchus and bronchiole in a tabular form.	4.0
	b) Explain the blood-air barrier with net diagram.	3.0
3.	a) Briefly describe the histology of renal corpuscle with a net diagram.	5.0
	b) Explain the histology of prostate gland.	2.0
4.	a) Enlist the cells found in the pituitary gland with hormones secreted by them.	4.0
	b) Write down the histological layers of nervous tunic of the eyeball.	3.0
5.	a) Describe the histology of the vagina of a cow.	5.0
	b) Mention the layers of epidermis with diagram.	2.0
6.	a) Describe the histology of thymus.	4.0
	b) Illustrate the histology of adrenal cortex.	3.0

SECTION-B

7.	a) Describe the histology of cerebrum.	5.0
	b) Draw and label the blood-brain barrier.	2.0
8.	a) Describe the histology of ovarian follicles with diagram	5.0
	b) Describe the Leydig cells with illustration.	2.0
9.	a) Compare the histology of the loop of Henle and the collecting duct of a nephron.	3.0
	b) Briefly describe the histology of the urethra.	4.0
10.	a) Compare the histology of the lymphatic nodule and splenic nodule.	2.0
	b) State the histological classification of capillaries with net diagram.	5.0
11.	a) Illustrate the histological classification of placenta with diagram.	4.0
	b) Write down the derivatives of ectoderm.	3.0
12.	a) Draw and label a mammalian mature spermatozoon.	4.0
	b) Give the histology of the uterine mucosa.	3.0

Chattogram Veterinary and Animal Sciences University
DVM 1st year 2nd Semester Final Examination- 2023
Course Title: Gross Anatomy-II
Course Code: 0912-GRA -102 (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 are encouraged to answer together)

SECTION-A

1.	a) Mention the origin and termination of the ductus deferens of a stallion.	1.0
	b) Enlist the muscles of penis and prepuce of a bull.	2.0
	c) Draw and label the genital system of a bull.	4.0
2.	a) Give the anatomical location of the spleen in a goat.	1.0
	b) Define lymph. States the compositions of it.	2.0
	c) Write down the anatomy of thymus of a goat.	4.0
3.	a) Define meninges.	1.0
	b) List the layers and spaces of meninges with diagram.	3.0
	c) Mention the formation and circulation of CSF.	3.0
4.	a) Enlist the branches of brachial plexus in a goat.	2.0
	b) State the formation of spinal nerve with labelled diagram.	5.0
5.	a) List the appendages of skin.	2.0
	b) Describe the anatomy of the retina and cornea of a goat.	5.0
6.	a) Write down the branches of abdominal aorta in a goat.	2.0
	b) Describe the branches and distribution of internal iliac artery of a cow.	5.0

SECTION-B

7.	a) Mention the largest cutaneous gland of a cow with its location.	2.0
	b) Enlist the organs of genital system of a cow sequentially.	1.0
	c) Compare the anatomy of left and right adrenal gland in an ox.	2.0
	d) Compare the penis of a stallion and bull.	2.0
8.	a) Write down the boundary of jugular furrow with its contents.	3.0
	b) Name the opening of the right atrium of heart of a bull.	2.0
	c) Give the anatomical differences between right and left ventricles of a cow.	2.0
9.	a) Illustrate the formation of jugular vein.	2.0
	b) Give the anatomical location of right kidney of an ox.	2.0
	c) Define spermatic cord. List the contents of spermatic cord in a bull.	3.0
10.	a) Write down the lobes and fissures of brain.	2.0
	b) Mention the largest cranial nerve. Describe the course of any one branch of it in a cow.	1+4=5.0
11.	a) List the sense organs of animal body.	1.0
	b) Mention the innervation of eye and tongue in a goat.	2.0
	c) Describe the anatomy of internal ear of a cattle.	4.0
12.	a) Mention the anatomical location of any five endocrine glands in a cow.	3.0
	b) Briefly describe the anatomy of pituitary gland in a goat.	4.0

Chattogram Veterinary and Animal Sciences University
DVM 1st year 2nd Semester Final Examination-2023
Course Title: Fodder Production
Course Code:0811-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 **8 (eight)** is compulsory. Use separate answer script for each section. Fractions of the questions must be answered together)

SECTION-A

1.	a)	Define feed and fodder. Indicate the characteristics of legume fodder.	1+2
	b)	Mention the scientific name of following fodders: i. German ii. Cowpea iii. Berseem iv. Oat v. Guinea vi. Ipil-Ipil	3.0
2.	a)	Define soil. Indicate the causes of soil acidity.	1+2
	b)	Discuss briefly about the two-soil tract of Bangladesh which are suitable for fodder production.	3
3.	a)	Define irrigation. Explain the necessity of irrigation for fodder cultivation in Bangladesh.	1+2
	b)	Discuss briefly two methods of surface irrigation suitable for napier production in hilly areas.	3
4.	a)	Define pasture and stocking rate.	2
	b)	List the different grazing systems. Discuss four grazing systems with their advantages and disadvantages.	1+3

SECTION-B

5.	a)	Define weed. Classify weed with examples.	1+2
	b)	State in brief the effects of weed on soil fertility.	3
6.	a)	Write down the preparation procedure of compost.	3
	b)	Briefly describe the procedure of silage making.	3
7.	a)	Briefly state the components of soil.	3
	b)	Write down the merits of lime application in soil and importance of soil reaction on plant growth.	3
8.		Write short notes on any two (2) of the followings: i. Rotational grazing ii. Tree fodder iii. Hay making iv. Problematic soil in Bangladesh,	2.5x2=5

Chattogram Veterinary and Animal Sciences University
DVM 1st year 2nd Semester Final Examination-2023
Course Title: Biochemistry
Course Code: 0512-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 biomolecules. Describe the role of biomolecules in animal body.	3
	b)	Describe the role of Biochemistry in understanding animal physiology and disease.	4
	c)	Draw the ring structure of the following: i) α-D mannos ii) α-D fructo furanose	4
2.	a)	Enlist the forces that are responsible for the structure of native protein. Draw the structure of the following peptides- "Val-Cys-Gly"	4
	b)	Give three evidences in favour of peptide bond present in protein.	4
	c)	Draw the structure of α-helix and β-plated sheet.	4
3.	a)	Describe the function of cholesterol with it's structure.	4
	b)	Describe the structure of sphingolipid and its function in the body.	4
	c)	Explain the process of fatty acid activation and transport into mitochondrion.	4
4.	a)	Give the evidence that nucleic acid acts as genetic materials.	4
	b)	Explain the concepts of leading strands, lagging strands, Okazaki fragments and replicon fork dynamics.	4
	c)	Describe the Watson-Crick model of DNA structure.	4

SECTION-B

5.	a)	Describe the steps involved in beta-oxidation of fatty acid.	3
	b)	Explain the significance of carnitine shuttle in fatty acid oxidation.	4
	c)	Enlist the steps of pentose phosphate pathway where energy is produced.	4
6.	a)	Describe the urea cycle and explain it's role in the detoxification of ammonia in the liver.	4
	b)	Explain the concept of amino acid catabolism and the importance of the amino acid pool.	4
	c)	"Ruminant lives on gluconeogenesis"-justify this statement.	4
7.	a)	Show graphically the effect of temperature and pH in enzyme catalyzed reaction.	4
	b)	Explain the "lock and key model" and "Koshland model".	4
	c)	Distinguish the following: i) Enzyme and co-enzyme ii) Amino acid and imino acid	4
8.	a)	Explain the concept of D and L configurations in relation to monosaccharides.	4
	b)	Describe the role of glycogen in maintaining blood glucose levels during fasting and exercise.	4
	c)	Briefly describe the post-transcriptional modification of mRNA.	4