Chittagong Veterinary and Animal Sciences University
DVM 1st Year 2nd Semester Final Examination-2017
Course Title: Histology & Embryology II (Theory)
Course Code: HEM-102 (T)
Full Marks: 70; Time: 3 Hours

(Figures in the right margin indicate full marks. **Answer any five questions** from each section. Use separate answer script for each section.)

Section-A

1. a) Draw and label the endometrium of uterus during follicular phase of a cow. 3
   b) Briefly describe the histological components of a seminiferous tubule of a testis. 4

2. a) Briefly describe the histology of a classical hepatic lobule with a net diagram. 5
   b) How to form the "space of Disse" and mention its lining cells. 2

3. a) Write down the microscopic features of thyroid gland of a goat with a neat diagram. 4
   b) How do you differentiate among thyroid, mammary and prostate glands under microscope? 3

4. a) Briefly describe the histology of esophagus of cattle. 3
   b) Give the histological differences among different parts of small intestine in goat. 4

5. a) Describe the histology of urinary bladder of goat. 3
   b) Briefly describe the histology of different parts of bronchioles. 4

6. a) Draw and label the microscopic structures of a thymus. 3
   b) Briefly describe the microscopic structures of epidermis of skin with a net diagram. 4

Section-B

7. a) Microscopically differentiate between sinusoid and capillary. 3
   b) Briefly describe the histology of the wall of heart. 4

8. a) Briefly describe the histology of a cornea. 4
   b) Draw and label microscopic structures of a cerebellum. 3

9. a) Define placenta and placentation. 2
   b) Classify placenta on the basis of histological structures with example. 5

10. a) Briefly describe the histology of an ovary of a cow. 5
    b) Briefly describe the histology of epididymis. 2

11. a) Describe the histology of renal corpuscle with net diagram(s). 4
    b) Briefly describe the histology of a lymph node. 3

12. Write down short note on any two of followings: (3.5 x 2) = 7
    (i) Histology of spinal cord.
    (ii) Histology of glandular stomach.
    (iii) Histology of mammary gland.
    (iv) Histology of corpus luteum.

Chittagong Veterinary and Animal Sciences University
DVM 1st Year 2nd Semester Final Examination 2017
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 3 (three) questions** from each section where **Question no. 5** is compulsory. Use separate answer script for each section.)

Section-A

1. a) Define following terms: notarium, uncinate process and pneumatic bone. 3.0
   b) List the air sac found in a chicken. 1.0
   c) Briefly describe the anatomy of the avian lung. 2.0

2. a) Draw and label the digestive tract of a chicken. 3.0
   b) Describe anatomy of the liver and pancreas of a chicken. 3.0

3. Differentiate the followings: 3x2= 6.0
   (i) Mammalian and avian respiratory system
   (ii) Mammalian and avian digestive system
   (iii) Mammalian and avian urinary system

4. a) Describe briefly the anatomy of testis of a cock. 3.0
   b) Draw and label the female genital tract of a hen. 3.0

Section-B

5. a) Briefly describe the anatomy of thymus and bursa of Fabricius of a bird. 3.0
   b) Write down the anatomy of spleen and caecal tonsil of a chicken. 2.0

6. a) Describe anatomy of the stomach of a chicken. 3.0
   b) Describe briefly the anatomy of the cloaca of a bird. 3.0

7. a) Briefly describe anatomy of avian kidney. 3.0
   b) List the anatomical differences of the kidney among hen, duck and pigeon. 3.0

8. Write short note any three of followings: 2x3= 6.0
   (i) Vagina of a hen
   (ii) Phallus of a cock
   (iii) Uterus of a hen
   (iv) Syrinx of a chicken

Chittagong Veterinary and Animal Sciences University
DVM 1st Year 2nd Semester Final Examination-2017
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 two questions** from each section of which question no **1 is compulsory**. Use separate answer scripts for each section.)

Section-A

1. a) Discuss the present status of fodder in Bangladesh with its prospects and problems. 5.0
   b) What is fodder? Classify fodder with examples. 3.0

2. a) What is preservation of fodder? What would be your strategy to preserve the legume fodder during winter season? 5.0
   b) Define legume and non-legume fodder. How do you preserve non-legume fodder during monsoon period for your dairy stock? Explain. 4.0

3. a) Define pasture. State the importance of pasture in livestock production. 4.0
   b) How do you practice for "Good Pasture Management" round the year for healthy production? Explain. 5.0

Section-B

4. a) Classify weed with examples. Discuss the beneficial effects and controlling measures of weeds in brief. 6.0
   b) Define forage. Write the common and scientific name of three perennial legume and three non-legume fodder. 3.0

5. a) What is soil? Briefly evaluate the soil tracts of Bangladesh. 6.0
   b) What do you know about water management? 3.0

6. Write short notes on (any three): 3×3=9
   (a) Intercultural operations
   (b) Farm yard manure and fertilizer
   (c) Grazing system
   (d) Alkaline soil management
   (e) Irrigation at Hathazari campus fodder

The End

Chittagong Veterinary and Animal Sciences University
DVM 1st Year 2nd Semester Final Examination 2017
Course Title: Biochemistry (Theory)
Course Code: BIC-102 (T)
Full Marks: 70; Time: 3 Hours

(Figures in the right margin indicate full marks. **Answer 3 (three) questions** from each section where **Question no. 1 and 5** are compulsory. Use separate answer script for each section. Split answer is discouraged)

Section-A

1. a) Write down the name of macromolecules found in animal body along with their functions. 2.0
   b) "Ruminate depends on gluconeogenesis" how explain. 3.0
   c) Differentiate following terms- 3.0
      i) DNA polymerase and RNA polymerase
      ii) Glycogenic amino acid and ketogenic amino acid
      iii) Reducing sugar and non-reducing sugar
   d) Define Tm, Annealing, Enomer, Exon, Sterol, Genetic code. 3.0

2. a) What are amino acids? Give their common physico-chemical properties. 3.0
   b) "Proline is a very special type of amino acid-explain. 3.0
   c) What are tertiary structures of proteins? Mention the major forces stabilizing the tertiary structures of protein. 4.0
   d) Write the structure of amino acid from each group- 2.0
      (i) Sulphur containing amino acid
      (ii) Acidic amino acid

3. a) How fats are different from lipids? What are the major functions of lipid? 4.0
   b) Briefly comment on saponifiable and non-saponifiable lipid. What does acid number signify? 4.0
   c) What do you mean by essential fatty acids? Give example of two essential fatty acids with structures. 4.0

4. a) State chargaff's rule of molar equivalence. Draw the structure of ATP. 3.0
   b) Briefly describe about a metabolic disorder arises from carbohydrate and lipid metabolism of high yielded lactuating cow. 3.0
   c) Differentiate starch and glycogen. Why glucose, fructose and mannose yield same osazone? 3.0
   d) Human cannot digest grass, whereas herbivores animal can- explain. 3.0

Section-B

5. a) Define biocatalyst. Classify enzymes along with examples. 2.0
   b) What is mutarotation? Briefly describe specific rotation along with its significant. 3.0
   c) What do you mean by denaturation of protein? Enlist 8 denaturing agents along with their mode of actions. 3.0
   d) "Krebs cycle is amphibolic in nature"- justify the statement. 3.0

6. a) What do you mean by β-oxidation? Discuss about the four basic steps of β-oxidation pathway. 3.0
   b) "Desaturation of fatty acids requires a mixed function oxidase"- justify. 3.0
   c) Write down the functional role of poly-unsaturated fatty acids. 3.0
   d) Experimentally show that DNA is the carrier of genetical materials. 3.0

7. a) What are the pre-requisites for replication? Illustrate replication process for higher animal. 3.0
   b) Indicate entry point of glycogen in glycolysis. Calculate bioenergetics for capric acid after complete oxidation. 3.0
   c) What is enolization? Write down the biological importance of following CHO; inulin, glycogen, heparin and hyaluronic acid. 3.0
   d) After snake bite why mucous membrane of animal turns bluish? Illustrate the action of phozpholipase on lecithin. 3.0

8. Write short notes on any four of the following topics. 4×3 =12
   (a) Ammonia toxicity
   (b) Lipid profile
   (c) Factors affecting enzyme action
   (d) Translation
   (e) Anti parallel β-plated sheet structure of protein

Chittagong Veterinary and Animal Sciences University
DVM 1st Year 2nd Semester Final Examination 2017
Course Title: Systemic Physiology (Theory)
Course Code: SPH-102 (T)
Full Marks: 70; Time: 3 Hours

(Figures in the right margin indicate full marks. **Answer three questions** from each section of which question no. **1 & 5 are compulsory**. Use separate answer scripts for each section. Fractions of the question must be answered together)

SECTION-A

1. a) What are the hormones involved in the regulation of urine formation? How does RAAS regulate urine formation? **3.0**

b) Define polyuria, renal threshold, plasma clearance and oliguria. **2.0**

c) What do you mean by tubular reabsorption? Enlist the substances reabsorbed in the proximal tubules of nephron. **3.0**

d) What is the main excretory organ of the body? Enlist the major functions of kidney. **3.0**

2. a) Why pancreas is not digested by its proteolytic enzymes? What is the pH of digestive juices? **3.0**

b) Enlist the digestive enzymes secreted by pancreas. What are the functions of pancreatic juice? **3.0**

c) Describe lipid digestion in simple stomach animals. **3.0**

d) How is protein digested in the rumen - show in a sketch? **3.0**

3. a) Define homoeothermic and poikilothermic animals. How does a camel maintain body temperature when exposed to hot weather? 4.0

b) What are the mechanisms of heat gain in the animal body? Write the normal temperature of horse, buffalo, goat and dog. **4.0**

c) What do you mean by growth curve? Describe factors affecting growth of animals. **4.0**

4. a) Write the physiological importance of surfactant. Sketch the mechanism of chloride shift in the red blood cell. **4.0**

b) What are the muscles involved in respiration? State the mechanism of inspiration in doe. **4.0**

c) What are the layers that exist in the respiratory membrane? How is O_2 transported to the cell? **4.0**

SECTION-B

5. a) List the factors of digestion in cattle. How is saliva secretion regulated? **4.0**

b) Write the end products of ruminal digestion of CHO and protein. Sketch the mechanism of sodium and chloride absorption in cow. **4.0**

c) What are the physiological roles of HCL in food digestion? Write the compositions and functions of gastric juice. **3.0**

6. a) Enlist the sensory modalities of dog. What are the factors need to be considered before handling a cattle? **3.0**

b) Give the examples of innate behavior. Briefly discuss the social behavior of cattle. **4.0**

c) Enlist five universal freedoms of animal. List the behavior indicators of normal animal. **3.0**

d) What is stereotypy? Write the abnormal behavior of cattle with health risk. **2.0**

7. a) What are the properties of voluntary muscle? Write the compositions of a muscle cell. **4.0**

b) Define T-tubule, refractory period, calcium pump and tone. **4.0**

c) What are the types of muscle contraction? Briefly discuss the contraction of smooth muscle. **4.0**

8. a) Enlist the buffer system in blood. How is buffer system regulated p^H in animal's body? **4.0**

b) What is alkali reserve? Sketch the renal mechanism in acid-base balance. **4.0**

c) List the locations of breathing centre? Briefly discuss the reflex control of respiration in horse. **4.0**

Chittagong Veterinary and Animal Sciences University
DVM 1st Year 2nd Semester Final Examination 2017
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 five questions** from each section. Use separate answer scripts for each section.)

Section-A

1. a) Write down the location of heart in an ox and a goat. Mention how they are located in their position. 3
   b) Mention the name and anatomical location of blood vessels those are commonly used for blood collection and pulse counting in cattle, goat and dog. 3
   c) Mention the specific anatomical location of the brachial artery in a goat. 1

2. a) Draw and label the female genital tract of a cow. 3
   b) Write down the anatomical shape and location of ovary, left kidney and urinary bladder in a cow. 4

3. a) What is CSF? How does it form and circulate? 4
   b) How lumbosacral plexus is formed? Write down its branches. 3

4. a) Mention the anatomical location of epidural space and where the spaces are available? 2
   b) Write down the specific anatomical location of tibial, fibular and shaphenous nerves at the leg region in a goat. 3
   c) Draw and label the structures showing how to form a spinal nerve. 2

5. a) Draw and label the longitudinal section of an eye ball. 2
   b) Briefly describe the anatomy of the lacrimal apparatus in a goat. 3
   c) List the parts and location of conjunctiva. 2

6. a) Write down the shape and location of any four endocrine glands. 4
   b) Briefly describe the antatomy of the pituitary gland. 3

Section-B

7. a) Mention the shape and location of any three superficial lymph nodes in cattle. 3
   b) Describe briefly the hepato-portal circulation in a goat. 4

8. a) Write down the anatomy of testis and epididymis in a bull. 5
   b) Which one is the largest cutaneous gland of a cow? Write down its location. 2

9. List the major branches of abdominal aorta and briefly describe the blood supply of the hind leg in cattle. 7

10. a) How to form the vago-sympathetic trunk and mention its location. 2
    b) Mention the location of the brachial plexus and list the nerves of the plexus those are supplying to the digit in cattle. 2
    c) Mention the specific location of ulnar nerve at brachial and antebrachial regions in a goat. 3

11. a) Draw and label the penis of a buck. 4
    b) Enlist the structures of a spermatic cord. 2
    c) Write down the name of anatomical layers of a scrotum. 1

12. Write short note on any two of the followings: (3.5 X 2) 7
    a) External ear of a goat
    b) Fetal circulation
    c) Brain stem

Chittagong Veterinary and Animal Sciences University
DVM 1st Year 2nd Semester Final Examination-2015
Course Title: Biochemistry
Course Code: BIC- 102 (T)
Full Marks: 70; Time: 3 Hours

*(Figures in the right margin indicate full marks. Answer any **three** questions from each section where question no. **1 and 5** are compulsory. Use separate answer script for each section. Split answer is discouraged)

Section-A

1. a) Briefly state the application of biochemical knowledge in the field of veterinary and animal science. 2
   b) Distinguish between the member of the following pairs: 6
      i. Epimer and anomer
      ii. Starch and cellulose
      iii. Lactose and maltose
   c) Define tautomerization. Write down the structures of a deoxy sugar and an aminosugar. 3

2. a) Classify proteins on the basis of their biochemical functions. Why is egg protein nutritionally an ideal protein? 4
   b) What do you mean by 'protein denaturation'? Briefly state the changes in physical, chemical and biological properties of denatured protein. 4
   c) Name (i) ketotriose and a monosaccharide found in fruits and honey; (ii) a natural anticoagulant and a metalloprotein occurring in blood; (iii) two forms of secondary structure and agents that cause protein denaturation and (iv) a sulfur containing amino acid and an acidic amino acid. 1x4=4

3. a) Classify lipids with examples. Distinguish between fat and oil. 5
   b) Name the essential fatty acids. Why are they essential for animals? 3
   c) Match the following: 0.5x8=4

Column-A	Column-B
Triacylglycerols	Odd chain fatty acids
Tocopherol	Phospholipids
$Omega_6$ fatty acid	Ketone body
β-hydroxybutyric acid	Essential fatty acids
Lecithin	Vitamin E
Valeric acid	Simple lipids
HDL	Lipoprotein
Cyclopentanoperhydrophenanthrene	Steroid nucleus

4. a) Define nucleic acids. What are the basic differences between DNA and RNA in relation to their base compositions, site at location and functions? 4
   b) Write down the role of mRNA, tRNA and rRNA in protein biosynthesis. How does protein biosynthesis occur in a eukaryotic cell? 4
   c) Define the followings terms: 1×4=4
      (i) Codon, (ii) Gene, (iii) Tm and (iv) Central dogma

Section-B

5. a) Define metabolism. List the unique features of anabolism and catabolism. 3
   b) Differentiate between glycolysis and gluconeogenesis. Show the reactions for the entry of glucose into the main stream of glycolysis with enzymes and co-factors involved. 4
   c) Explain how 38 moles of ATP are produced when a mole of glucose is completely oxidized into Co_2 and water. 4

6. a) Classify enzymes on the basis of reaction types that they catalyze (with one example in each class). 3
   b) Enumerate the factors affecting enzyme action. Discuss the effect of temperature and p^H. 3
   c) Define the following terms: 3
      i) Co-enzyme, ii) Co-factor, iii) Vmax and iv) Km
   d) What is action site? Write down salient features of action site. 3

7. a) How many moles of ATP will be produced from a complete oxidation of one mole of glucose? Mention the importance of pentose phosphate pathway in lactating animal. 3
   b) Illustrate the cori cycle. State the biological significance of cori cycle in animal. 3
   c) What is anaplerotic reaction? Give one example. 3
   d) What are the end products of an odd-numbered fatty acid when it is oxidized via beta-oxidation? Show how this end product is further oxidized into CO_2 and H_2O. 3

8. Write short notes **any four** of the following: 3x4=12
   (i)Urea cycle, ii) Mutarotation, iii) β- oxidation, iv) Glycogenolysis, v) Chargaff's rule and vi) Replication