



Q.1) A::What is the effect of parasympathetic stimulation on Four of the followings:

- 1)-intestinal motility.
- 2)-Male sex organs.
- 3)-Cardiac muscle contractility .
- 4)- S.A node and A.V node .
- 5)-GIT secretion .
- 6)-Skin arterioles.

B::Answer TWO of the followings:

- 1) Enumerate the steps of relaxation of skeletal muscle .
- 2) Enumerate the causes negative charge(-ve) of resting membrane potential.
- 3) Enumerate FIVE types and main function of cell organellex.

Q.2) 1:Define three of the followings:

- a) Juxtaglomerular apparatus .
- b) Rough endoplasmic reticulum.
- c) GFR.
- d) cortical nephrone.

2: Draw and label an action potential in a nerve cell.

Q.3) A:Define FIVE of the followings:

- 1)-Vasoconstriction .
- 2)- Ovulation.
- 3)-Cardiac output .
- 4)-Pampiniform plexus .
- 5)-Uterine milk.
- 6)-Secondary sex ratio.

B: Mention only ((3 of 4)):

- 1-Factors affected blood flow.
- 2-Factors help in sperm transport toward ampulla.
- 3- Three hormones play important role in parturition.
- 4- Type of blood vessels.

Q.4) Fill in the blanks ((answer FIVE only)):

- 1- The volume of blood ejected from each ventricle per minute called
- 2- Driving force of blood in systemic circulation is a bout
- 3- blood vessels which is responsible for gas exchange is called.....
- 4- the main function of the ovary is
- 5- the hormone which is called ovulatory hormone is
- 6-Complete development of corpus luctium occur duringestrus phase.



Q.5) A- Give three functions of the followings:

- 1) Melatonin. 2) Aldosterone. 3) Thyroxine (T4) hormone .

B- Mention three main differences between:-

- 1- HCG and ECG .
- 2- HbA and HbF.

Q.6) Answer the followings:

- 1- Enumerate two hormones secreted from adrenal cortex. Write one function for each hormone.
- 2- Enumerate two membranes for brain and spinal cord. Write the location of CSF.

Q.7) A: Answer three of the followings:

- 1- What are the functions of saliva?
- 2- Mention the action of five enzymes of the digestive system.
- 3- What is the importance of bilirubin in the bile ?
- 4- What are the components of gastric juice?
- 5- What are the functions of the gall bladder ?

Q.8) A- Define three of the followings:

- 1- Hypoxia hypoxia. 2- Spirometer . 3- Diaphragm. 4- Vital capacity.

B - What are the basis by which oxygen is transported from the air of the alveolus to the blood in the pulmonary capillaries? Mention also name of the transport method.



Q.1) Write the chemical structures of (Four) of the followings: ((16 marks))

- | | | |
|--------------------------------|----------------------------|-----------------|
| 1- α -D-glucopyranose . | 2- Lactose. | 3- Cholesterol. |
| 4- linoleic acid . | 5- 1,oleo,2-3plainosterin. | 6- ATP. |

Q.2) A : Explain (SIX) of the followings: ((30 marks))

- 1- Effect of PH on enzymatic reactions .
- 2- Biomedical importance of glycolysis.
- 3- Biomedical importance of TCA cycle .
- 4- Degradation of Triacylglycerol by pancreatic enzymes.
- 5- Amino acid catabolism through oxaloacetic acid pathways.
- 6- Transamination .
- 7- Method of removal of ammonia from brain .
- 8- Urea cycle.

B: Show the pathway of (TWO) of the followings: ((10 marks))

- 1- β -oxidation of long chain fatty acid.
- 2- Oxidative stage of glycolysis.
- 3- Synthesis of ketone bodies.

Q.3) Explain with equations the biosynthesis of (FOUR) of the following amino acids: ((16 marks))

- | | | |
|--------------|----------------|--------------------|
| a-) alanine. | b-) cystein. | e-) aspartic acid. |
| d-) serine. | e-) glutamine, | f-) glutamic acid. |



Q.4) Write true or false and correct the false statement: (FOUR only)

((8 marks))

- 1- Nucleoproteins are protein with carbohydrate .
- 2- Protein kinase A an enzyme consist of two subunits (R)and (C)).
- 3- Glycolysis pathway occur in the ribosome .
- 4- In the DNA strands adenine paired with uracil by hydrogen bonds.
- 5- Mmembrane lipids are amphipatic molecules with polar hydrophilic head and polar hydrophobic tail.
- 6- C-AMP is a nucleotide derived from ATP through the action of guanylyl cyclase.

Q.5) A: Write the function of (THREE) of the followings: ((8 marks))

- 1- Ca^{+2} and phosphotidylinositol (PIPP2).
- 2- Histon.
- 3- DNA ligase.
- 4- Messenger RNA.
- 5- Cytoskeleton .

B:Numerate (THREE) only:

((12 marks))

- 1- Types of RNA.
- 2- DNA bonds.
- 3- RNA bases.
- 4- Steps of catabolism of amino acid nitrogen.
- 5- Three essential amino acids.



Note : Answer four Questions only .

- 1- Numerate and draw the types the chromosomes
- 2-Numerate five sex linked diseases .
- 3-Numerate the causes of deviation from Mendel laws
- 4-discuse the additive gene interactions
- 5-Numerate the types of mutation
- 6-Numerate the causes of Mendel successful .



Q1 answer only two questions

- (A) Define the following: 1. Thoracic duct. 2. Scrotum.
(B) Describe the testes.
(C) Enumerate the following: 1. Accessory sex gland of horse and dog.
2. The superficial lymphocenter of animal's body.

Q. 2 answer only two questions

- (A) 1. What mean of thoraco-lumbar and craino-sacral division
2. Enumerate the cisterna in brain.
(B) III, IV, VI and XII
1. Write the name of these cranial nerves.
2. Mention the sharing relationship of these nerves.
C. Draw and label the ventral aspect of the brain.

Q. 3 answer only two questions.

- (A) Enumerate the papilla of the tongue in Ox.
(B) Describe the ascending colon of horse.
(C) Enumerate with draw the type of the uterus with example.

Q. 4 answer only three questions.

1. Define two of these terms:
a. Endothoracic fascia. b. Mediastinum. c. Pleura.
2. Enumerates the parts of the bronchial tree respectively.
3. Determined the function of the kidneys.
4. Describe the modulla of the kidney in following animals:
Carnivores, Pig, Ox, and Horse



Q.1 Differentiate between only two of the following:

- A. Small and Large intestine.
- B. Duodenum and jejunum.
- C. Alpha and Beta cells of langerhans.

Q.2 classifies the different types of blood components?

Q.3 Define only four of the following:

Cytoplasm, Endoplasmic reticulum, microvilli, Nerve cell, Tonsils, Nephron.

Q. 4 answer only three of the following:

- 1) Differentiate between the types of cartilage.
- 2) Differentiate between the neuron and neuralgia.
- 3) Describe the histological structure of spleen.
- 4) List the parts of Nephron.
- 5) Write the histological structure of pineal body.



Q.1 Classify (Answer only 2):

- the hooves with example.
- the kidney of domestic animals.
- the types of penis in Ox, stallion and Ram

Q.2 Draw and diagram of the hoof ground surface.

Q.3 Answer only 2:

- Enumerate the anatomical structure of spermatic cord.
- Write about (1) kidney, (2) Ureter.
- Write about the descending of testis in scrotum.

Q.4 answers only one of the following:

- Draw and label the ovary and uterine tube of mare.
- Draw and label the male urinary system.

Q. 5 answer only three of the following:

- Mention the major artery distributed from aorta that supply (a) spleen, (b) kidney, (c) tail.
- Enumerate the main blood vessels present in the jugular groove.
- Enumerate the openings that occur in the right ventricle.
- Enumerate the endocrine organs (only five)

Q. 6 answer only three of the following:

- Describe briefly why mastitis usually affect individual quarters in cattle.
- Make a table showing the numbers & location of mammary gland in sow, mare, rat and cow.
- Enumerate the components of dissected lactating udder.
- In which cavity inside the body, these organs are present:
a. (Thymus). b. (Adrenal). c. (Pituitary gland).



Q:1 Answer only 3 of the following :

- A- What are the properties of water .
- B- Write on protein digestion in (small intestine).
- C- What do we mean by macro/micro elements , Explain that with sample.
- D- What are the properties of carbohydrate .

Q:2 Answer only 3 of the following:

- A- Write on the deficiency of phosphor (p) in the animal feeding.
- B- What are the chemical nature ,source and deficiency of vit. B1 (Thiamin).
- C- Define the following :
 - 1- Maintenance 2- malnutrition 3- growth 4- dry matter
- d- Enumerate the essential and non essential amino acids.

Q:3 Define only 4 of the following:

- 1- Microbial digestion 2- Ruminant 3- Net energy 4- biological value
- 5- Methanogenesis .

Q:4 A- Draw the plan of N digestion in the rumen .

B- What are the factors affecting on 3 of the following :

- 1- Digestibility coefficient of food.
- 2- Metabolisable energy.
- 3- Urea digestion in the rumen.
- 4- Crude fiber digestion in the rumen.



Q:5 Answer only 2 of the following:

- A- Define briefly the compensatory growth and its importance in broilers .
- B- Mention only the program of compensatory growth .
- C- What is the symptoms of excess and deficiency of energy in poultry nutrition?

Q:6 Answer only 2 of the following:

- A- What are the benefits of pellet that is used in the diet of poultry .
- B- Mention and explain briefly the main types of poultry feed .
- C- What are the differences between layer and broiler diets .



Q.1 Define only four of the following:

Oogenesis, Fertilization, Implantation, Blastula, Placenta.

Q.2 answers only three of the following:

- 1) Draw a diagram the spermatogenesis.
- 2) Explains the types of placentation in mammals.
- 3) Define the cleavage and mention the types of cleavage.
- 4) List the primitive heart regions.

Q.3 defines only three of the following:

Intermediate mesoderm, Pronephros, Metanephrogenic mass, lateral mesoderm.

Q.4 Write about the development of two of the following:

A. Metanephros. B. Simple stomach. C. Liver.