

Chittagong Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination, 2008
Subject: Integration Physiology, Body fluids and Cardiac Dynamics (Theory)
Course Code: IPH-301
Full Marks-55, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any **Three** questions of which question no. **5** is compulsory. Use separate answer script for each question.)

Section-A

- | | | |
|----|--|---------|
| 1. | (a) Define and classify heart block. | 4.0 |
| | (b) Describe the various events of cardiac cycle. | 5.0 |
| 2. | (a) Define macrosmatic, microsmatic and anosmatic animals. | 4.0 |
| | (b) Describe the rhodopsine cycle. What happens if the cycle doesn't work? | 5.0 |
| 3. | (a) List the name of primary odours. How do you differentiate amongst scent, smell and odour? Mention some scent glands. | 3.0 |
| | (b) How do you recognize leading behaviour in cow and mare. <i>leading behaviour</i> | 3.0 |
| | (c) List the behaviour and <i>normal</i> behaviour in horse, cattle and <i>normal</i> | 3.0 |
| 4. | Write short notes any three of the followings:
(a) Blood pressure (b) Electrocardiogram (c) Apocrine gland (d) He | 3×3=9.0 |

Section-B

- | | | |
|----|---|-----|
| 5. | (a) Write a short note on circulatory adjustment relative to temperature. | 2.0 |
| | (b) What is critical temperature? What are the factors causing variation in body temperature? | 3.0 |
| | (c) What are the processes of the heat production and loss in warm blooded animals? | 3.0 |
| | (d) Briefly describe the role of shivering and hormonal response to temperature adjustment. | 2.0 |
| 6. | (a) Explain cold acclimation, acclimatization and cold adaptation. | 4.0 |
| | (b) List the five freedoms for animal. Briefly describe about heat tolerance level of different species of domestic animals. | 5.0 |
| 7. | (a) Write down the regulating factors of blood pressure. How will you measure blood pressure in dog? | 3.0 |
| | (b) Write down the special tissue of the heart. How does impulse of heart beat originate and spread? | 3.0 |
| | (c) Define and Classify vessels? How do you differentiate general and special circulation? | 3.0 |
| 8. | (a) Differentiate the followings: | 3.0 |
| | (i) Estrus and libido, (ii) Shell and core temperature, (iii) Cardiac output and venous return | |
| | (b) Write down the justification to have taste buds located on the posterior site of the tongue. How taste signals transmitted to the CNS? | 3.0 |
| | (c) Define the followings: (i) Ethogram, (ii) Reproductive abilitation, (iii) Pheromones, (iv) Carcadian rhythm, v. Comfort zone vi. Fibrillation | 3.0 |

Chittagong Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination, 2008
Subject: Poultry production (Layer and Broiler), Theory
Course Code: PPR – 301
Full Marks-70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any **Three** questions from each section but question no.1 & 5 are compulsory. Use separate answer script for each section).

Section-A

- | | | |
|----|--|---|
| 1. | a. Write down the names of three egg purpose, three meat and three dual purpose breeds of chicken | 3 |
| | b. How would you distinguish a cock and a hen ? | 3 |
| | c. Mention the names of hormones which are involved in egg production | 2 |
| | d. Give the incubation periods of eggs of different poultry species | 3 |
| 2. | a. Mention the brooding requirements of broiler chicks up to 28 days of age | 3 |
| | b. Give the photoperiod, lighting intensity, floor space and air speed needed for hybrid broiler. | 3 |
| | c. Write the importance of breast meat in broiler. | 3 |
| | d. Give the factors which influence feed conversion efficiency in layer | 3 |
| 3. | a. How the modern broiler strains are produced ? Name the breeds used in breeding for it's development | 3 |
| | b. Describe the different steps of broiler processing | 6 |
| | c. Write notes on shrinkage of broiler during transportation | 3 |
| 4. | a. How would you select of hatching eggs ? | 3 |
| | b. How would you store and maintain hatching eggs ? | 3 |
| | c. Write in detail the incubation and hatching of chicken eggs. | 6 |

Section-B

- | | | |
|----|---|---|
| 5. | a. Write in detail the effects of lighting on egg production | 6 |
| | b. How would you control body weight of growing chicks ? | 2 |
| | c. Explain hen day egg production with formula of estimation | 3 |
| 6. | a. What are the poultry vaccines produced in Bangladesh and write down their transportation and preservation. | 4 |
| | b. Give a vaccination schedule of a commercial layer flock | 4 |
| | c. How would perform fumigation ? Write it's importance in poultry farm | 4 |
| 7. | a. How would you maintain bio security in a poultry farm? | 6 |
| | b. Mention the names of different feeding standard for layer and broiler | 4 |
| | c. Give merits and demerits of rearing poultry in environmental house and open sided house. | 2 |

8. Write short notes on any four of the foollowings: 3x4=
- 12
- i) Straight run
 - ii) Environmentally controlled housing
 - iii) Egg drop syndrome
 - iv) Culling and selection of poultry
 - v) Moulting

Chittagong Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination, 2008

Subject: Virology (Theory)

Course Code: VIR – 301

Full Marks-70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any **Three** questions from each section of which question no **1 and 5** are compulsory. Use separate answer script for each section).

Section-A

1. a) Define a virus. 1
b) Describe the structural components of viruses with their function. 6
c) Define bacteriophage. Draw a T₂ phage showing its different structural components. 4
2. a) Describe the basis of modern classification of viruses. 4
b) Define cryptogram. Describe the different sets of symbols used in writing a cryptogram with example. 4
c) Write down the properties of Mycoplasmas, Rickettsia and Chlamydothila. 4
3. Write down the laboratory diagnostic procedures of the following diseases:- 4 x 3
a) Rabies b) Peste-des-petits ruminants c) Foot and Mouth Disease d) Newcastle Disease = 12
4. Differentiate the following viruses:- 4 x 3
a) Chicken pox virus from Smallpox virus = 12
b) Duck plague virus from Duck viral hepatitis virus
c) Canine distemper virus from Canine hepatitis virus
d) Marek's disease virus from lymphoid leukosis virus

Section-B

5. a) Write down the major techniques used in virus purification. How purity of a virus is tested? 5
b) Give the properties of interferon. 3
c) Describe in brief the causes of vaccine failures against viral diseases in animals. 3
6. a) How will you differentiate a low pathogenic avian influenza (LPAI) virus from that of a highly pathogenic avian influenza (HPAI) virus? 3
b) By producing laboratory evidence how will you differentiate Newcastle disease from HPAI? 5
c) Write in brief the characteristics of different forms of Newcastle disease occurred in chickens. 4
Explain intracerebral pathogenicity index and intravenous pathogenicity index of a virus.
7. a) Describe different kinds of persistent virus infections in animals along with their consequences. 6
b) Name of the species of the genus Mycoplasma that cause diseases in birds and mammals. 6
How will you investigate the status of Mycoplasmosis in a chicken flock?
8. a) Give the cultural properties of the following viruses:- 3 x 2
i. Duck plague virus ii. Infectious bursal disease virus iii. Egg drop syndrome, 1976 virus = 6
b) How do you control – i. Marek's disease and ii. Infectious canine hepatitis? 2 x 2
= 4
c) What are the samples you will collect for laboratory investigation of:- i. Rota viral diarrhoea 1 x 2
in calf and ii. Feline panleukopenia? = 2

Chittagong Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination, 2008

Subject: Animal Genetics (Theory)

Course Code: AGN – 301

Full Marks-70, Time: 3 Hours

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

Section-A

1. a) Define genetics, gene and reciprocal cross. 3
b) Explain different types of gene action with suitable example. 5
c) State the particulate theory of inheritance. 3
2. a) What is epistasis? Explain non-epistatic intergenic genetic interaction. 4
b) Distinguish between epistasis and dominance. What is the minimum number of allelic pairs which mostly involved when epistasis occur? 3
c) Write down about the sex chromosome mechanism of sex determination. 5
3. a) Describe the phenomenon of linkage by giving suitable example. Why linkage is an exception to Mendel's second law? 3
b) Distinguish between incomplete dominance and co-dominance with suitable example in livestock. 5
c) Describe different types of linkage with its significance. 4
4. Write short notes any four of the followings: 4x3 = 12
(i) Cloning (ii) Unbalanced structural mutation (iii) Aneuploidy
(iv) Environmental effect on gene expression (v) Non disjunction

Section-B

5. a) What do you mean by sex related traits? Briefly discuss the sex linked inheritance of eye color in drosophila? 4
b) Describe the types of mutation that affect chromosomal structure with neat diagram. 4
c) How will you determine gene order? 3
6. a) What is crossing over? How will you detect linkage and crossing over? 4
b) What is the rate of recombination and its importance in genetic cross? 3
c) What is the genetic mapping? How will you construct genetic map. 5
7. a) What do you mean by chromosomal aberration? 1
b) Which is the greatest evolutionary importance of various chromosomal aberrations? 3
c) How classical 9:3:3:1 ratio may be converted into 12:3:1; 9:3:4; 9:7; 15:1; 13:3 and 9:6:1? 8
8. Write short notes any four of the followings: 4x3 = 12
(i) Polyploidy (ii) Translocation and inversion (iii) Polygenic inheritance (iv) Mutagens
(v) Pleiotrophism.

Chittagong Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination, 2008
Subject: Animal Nutrition (Theory)
Course Code: ANT- 301
Full Marks-55, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any **THREE** questions from each section of which question number 5 is compulsory. Use separate answer script for each section.)

Section-A

- | | | |
|------|--|--------|
| 1.a) | Define proximate analysis. Write down the limitation of proximate analysis . | 3 |
| b) | Give the functions of polysaccharides and protein for animal . | 3 |
| c) | What do you know about the balance ration, maintenance ration and production ration? | 3 |
| 2.a) | Define minerals. Give the general function of minerals. | 2 |
| b) | Mention the major functions and deficiency symptoms and sources of Ca, P, Mn and iron in milking cow. | 4 |
| c) | Illustrate the partitioning of energy in ruminants. | 3 |
| 3.a) | Define crude protein, true protein and non protein nitrogenous substances with examples. | 2 |
| b) | Describe how ruminants utilize non protein nitrogenous substances for their protein need. | 4 |
| c) | What do you mean by dispensable amino acids? Indicate the dispensable amino acids with their precursors. | 3 |
| 4. | Write short notes on any three of the following: | 3x3= 9 |
| a) | Feeding standard . | |
| b) | Nutritional Balance , | |
| c) | Interrelationship between vitamin E and selenium . | |
| d) | Function of ruminant stomach. | |
| e) | Nutritive value of yellow corn and fish meal. | |

Section-B

- | | | |
|------|---|---|
| 5.a) | Define and classify polysaccharides. | 2 |
| b) | Show the pathways of secondary fermentation of carbohydrate in rumen. | 4 |
| c) | What is the end product of carbohydrate digestion in ruminants? Discuss briefly the fate of acetate in ruminants. | 4 |
| 6.a) | What do you mean by apparent and true digestibility? | 2 |
| b) | Write down the factors that affect the digestibility of crude fiber(CF). | 4 |
| c) | Define biological value (BV) of protein. Mention the BV of milk and egg protein. | 3 |
| 7.a) | Why is the quality of protein not important in ruminant nutrition? | 2 |
| b) | Give the pathways of synthesis fatty acids in mitochondria. | 4 |
| c) | Briefly discuss the lipid digestion in non-ruminants. | 3 |
| 8.a) | Define vitamins. Differentiate fat soluble and water soluble vitamin. | 3 |
| b) | Which vitamins are the important for reproduction and vision? Indicate their sources for cattle and poultry. | 4 |
| c) | What do you mean by the term requirement and allowance? | 2 |

Chittagong Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination, 2008
Subject: Parasitology (Arthropods)
Course Code: PAR – 301
Full Marks-55, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any **FOUR** questions from section A and **THREE** from section B. Use separate answer scripts for each section).

Section-A

- | | |
|---|-------------|
| 1.a) Write down the name of the vector of the following diseases/worm-
i) African swine fever ii) <i>Dipylidium caninum</i> iii) Red water fever iv) East coast fever
v) Bubonic plague vi) Anthrax | 0.5 x 6=3.0 |
| b) What types of preventive measures will you take to control the vectors? | 4.0 |
| 2.a) What is Arthropods? | 1.0 |
| b) Give the name of different classes of veterinary important arthropods. | 3.0 |
| c) Define the following terms:
i) FAD ii) Exuvia iii) Ecdyses iv) Diapause v) Flea hotspots vi) Complex metamorphosis | 0.5x6=3.0 |
| 3.a) What do you know about Bot flies? | 3.0 |
| b) Write on the biology of Culex. | 3.0 |
| c) Differentiate between Carrier and Vector. | 1.0 |
| 4.a) Write down the type of metamorphosis of the following arthropods:
i) Louse ii) Flea iii) Tick iv) Fly v) Mosquito vi) Mite | 0.5 x 6=3.0 |
| b) Why flea is so important in Dog and Cat on the aspect of pathogenecity? | 4.0 |
| 5. Write short notes on any two of the followings:
a) Sheep ked b) Myiasis c) Chemical control of vector d) Pulex | 3.5 x 2=7.0 |

Section-B

- | | |
|--|-----|
| 6.a) Write down the components of tick saliva with their functions. | 3.0 |
| b) Briefly describe the lifecycle of a three host tick. | 3.0 |
| c) Write short notes on Tick paralysis. | 3.0 |
| 7.a) What is Tongue worm? | 2.0 |
| b) Define Blow fly strike. List the flies available in Bangladesh. | 3.0 |
| c) How can you differentiate between the Ox warble flies which have veterinary importance? | 4.0 |
| 8.a) What do you mean by CIGER-shaped mite? | 1.5 |
| b) How can the aforementioned mite complete its lifecycle? | 4.0 |
| c) Write down the pathogenesis of Demodectic mange in Dog. | 2.0 |
| d) How can you confirm about the mite infestation in an animal in a Parasitology laboratory? | 1.5 |
| 9.a) Name three insects in which both male and female can suck blood from a host? | 1.0 |
| b) Among the insects, which is the serious pest of most animals and man in Bangladesh? | 5.0 |
| c) How can you identify a Tsetse fly? | 3.0 |

Chittagong Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination, 2008
Subject: General Pharmacology (Theory)
Course Code: GPH- 301
Full Marks-70, Time: 3 Hours

(Figures in the right margin indicate full marks. Answer any **THREE** questions from each section of which question number 1 and 5 are compulsory. Use separate answer script for each section.)

Section-A

- 1.a) Define and classify receptor. Name four common receptors with their agonist and antagonist. 3.0
- b) What are the different mechanisms of drug action? Describe the enzyme mechanism of drug action. 4.0
- c) Define pharmacokinetics. Describe the biotransformation of drugs. 4.0
- 2.a) Define heart stimulants and heart tonics. Describe the mode of action, dose, indication and contraindication of digitalis. 5.0
- b) Describe the mode of action and doses of hexamine. 4.0
- c) Name ten modern diuretics with doses. 3.0
- 3.a) Classify the drug act on respiratory system with examples. 3.0
- b) Write down the doses, mode of action, indication and contraindication of bronchodilator in livestock. 5.0
- c) How does an expectorant differ from a mucolytic? What is an antitussive drug? 4.0
- 4.a) What is NSAID? Classify the NSAIDS. 4.0
- b) Define clinical Pharmacology. Explain the term bioavailability and biological half life. 4.0
- c) Define and classify anaesthetics. Name five general anaesthetics with doses. 4.0

Section-B

- 5.a) Define and classify purgatives with examples. 3.0
- b) Write down the dose, mode of action, indication and contraindication of castor oil in cattle. 4.0
- c) Differentiate laxatives from purgatives. What are the therapeutic justifications to use them? 4.0
- 6.a) Classify diuretics on the basis of mode of action. 3.0
- b) Write down the dose, mode of action, indication and differences between high ceiling diuretics. Show the differences between high and low ceiling diuretics. 5.0
- c) List the drugs used as urinary alkalizer and antiseptics with their clinical importance in animals. 4.0
- 7.a) Show the differences among tranquilizer, sedatives, hypnotics and narcotics. List the name of general anaesthetics. 4.0
- b) Write down the salient features of ideal anaesthetics. Write down the mode of action of local anaesthetics. 4.0
- c) Classify barbiturate anaesthetics with examples. Describe the stage of surgical anaesthesia. 4.0
8. Write short notes on any three of the following: 3×4=12
- a. Biotransformation b. Pharmacopia c. Drug incompatibility d. Carminatives and Antizymotics

Chittagong Veterinary and Animal Sciences University
DVM 3rd Year 1st Semester Final Examination' 2008
Subject: Systemic and Avian Pathology (Theory)
Course Code: SAP- 301
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) What are the characteristics sign of Marek's disease? 3.0
b) Differentiate Marek's disease from Lymphoid leucosis. 4.0
2. a) What do you mean by emerging disease? 1.0
b) Describe the pathology of two emerging diseases of poultry in Bangladesh. 2.0
c) Describe the pathology of the following diseases: 2+2=4.0
i) Fowl Cholera ii) Fowl Typhoid
3. a) How does the causal agent enter the nervous system? Make a list of diseases affecting the nervous system. 3.0
b) Explain the following terms: 4.0
i) Satellitosis ii) Granular Ependymitis iii) Leptomeningitis iv) Hydrocephalus
4. Describe the procedures of post mortem examination of bird. 7.0
5. a) Differentiate between Myopathy and Myositis. 3.0
b) Describe the procedures of formation of dark red brown urine in Azoturia. 4.0
6. a) Sketch the pathogenesis of left sided heart failure. 3.0
b) Sketch the pathogenesis of valvular endocarditis. 4.0

Section-B

7. a) What is Choke? Write down the fate of Choke. 3.0
b) What is Cirrhosis? Write in brief about the causes of Cirrhosis. 4.0
8. a) Write down the pathogenesis of Asthma and Bronchiectasis. 4.0
b) List the causes of Pneumonia in animal. 3.0
9. a) Write down the etiology of Glomerulonephritis. 2.0
b) Write down the etiology of toxic tubular nephritis and hypoxic nephritis. 3.0
c) Sketch the pathogenesis of Hyperplastic goiter. 2.0
10. a) Write down the etiology of Coccidiosis in chicken with their predilection sites in intestine. 3.0
b) Write down the pathology of brooder pneumonia. 4.0
11. a) Define gastritis and enteritis. Briefly describe different types of enteritis. 4.0
b) Mention the causes and mechanism of reticulo-peritonitis. 3.0
12. a) Mention four common congenital cardio-vascular anomalies with short description of each. 3.0
b) Describe the mechanism of Atherosclerosis. 2.0
c) ' Adiponactin is a lipid hormone that reduces the risk of coronary heart disease'- explain it. 2.0

Chattogram Veterinary and Animal Sciences University
DVM 2nd year 2nd Semester Final Examination 2019
Subject: Veterinary Nematology (Theory)
Course Title: VNM-202 (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

1. a) What is bursa? Enlist the genera under bursate and non-bursate nematodes. 4
b) Classify esophagus of nematodes with examples. 3
2. a) Why the nematode is called roundworm? Describe the general morphology of ascarids. 3
b) Illustrate the harmful effects in horses by the larval stages of *Strongylus* spp. 4
3. a) Illustrate the life cycle and pathology of bovine Ostertagiosis. 5
b) Enlist the hookworms of domestic and pet animals. 2
4. a) Elaborate the biology and pathology of *Neoascaris vitulorum*. 4
b) Formulate an effective control of strategy against filaroids. 3
5. a) Diagnose the following parasites in the laboratory through coprological examination- (any five) 1×5
=5
i) *Haemonchus contortus* ii) *Trichostrongylus axei* iii) *Capillaria* spp iv) *Trichuris trichiura* v) *Ascaris suum* vii) *Dictyocaulus viviparus*
b) 'Poultry cecal worm plays vital role in the epidemiology of blackhead disease'- Justify 2.
6. Write notes on any two of the following disease conditions. 3.5×2
=7
a) Dracunculosis b) Summer sore c) Barber's pole worm

Section B

7. a) Mention the risk factors associated with 'humpsore' and 'muscle worm' infection 3
b) Illustrate the life cycle of 'canine hookworm' 4
8. a) Enlist nematodes that are transmitted through 'skin penetration', 'trans-mammary' and 'transplacental'. 3
b) Write down the life cycle, pathogenic significance and diagnosis of 'gapeworm' infection in turkey. 4
9. a) Contrast the life cycles of *Ascaris suum*, *Toxocara canis* and *Neoascaris vitulorum*. 3
b) Write short note on 'hypobiosis' and 'PGE' 4
10. a) Explain why it is difficult to treat 'Dirofilariasis' in dog by anthelmintic? 3
b) Write down the pathogenesis and clinical findings of 'Spirocercosis' in stray dogs. 4
11. a) How will you morphologically identify the following parasites in a clinical pathology laboratory? 0.5×6
=3
i) *Haemonchus contortus* ii) *Ancylostoma tubaeformis* iii) *Trichuris globulosa* iv) *Strongylus equinus* v) *Macracanthorhynchus hirudinaceus* vi) *Dirofilaria immitis*
b) State the life cycle and public health significance of '*Trichinella spiralis*' infection 4
12. a) Enlist cuticular modifications of nematodes with appropriate examples. 3
b) Write down the scientific name / causal agent against their below mentioned common name / condition 4
i. Poll evil ii. Summer sore iii. Calabar swelling iv. Pinworm (man) v. Redworm (horse) vi. Fork worm
vii. Whipworm (dog) viii. Eyeworm (poultry)

Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 2nd Semester Final Examination-2015
Course Title: Veterinary Nematology (Theory)
Course Code: VNE- 202 (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 a longitudinal section of a typical male nematode. 3
b) Illustrate with diagram the different types of esophagus of nematode parasites. 4
2. a) List the definitive hosts with the predilection sites of any three of the following 3 nematodes.
i) *Toxocara vitulorum*, ii) *Heterakis gallinarum*,
iii) *Oesophagostomum radiatum*, and iv) *Syngamus trachea*.
b) Compare the morphological features between Ascaridia and Strongyloidea. 4
3. Describe the pathologic significance of the followings: 7
(a) Anchylostomiasis in dogs, and
(b) Lung worm infestation in calves.
4. a) Sketch the life cycle of canine ascarid worms. 3
b) How verminous aneurysm and verminous colic are produced in horse? 4
5. a) Describe the life cycle and pathologic significance of canine heart worm infection. 4
b) Explain the pathologic effect of *Spirocerca lupi* infection in dog. 3
6. a) Describe the life cycle of *Trichinella spiralis*. 3
b) Enlist eight nematodes causing diarrhoea and/or anaemia in animals. 4

Section-B

7. a) Name six bursate and six non-bursate nematodes. 3
b) How will you differentiate between type-I and type-II ostertagiasis? 4
8. a) Name the parasitic nematodes of ducks with their predilection site in the hosts and their brief significance. 3
b) Write brief notes on:
(i) Hypobiosis, and (ii) Periparturient rise. 4
9. a) Draw and label the cuticular modifications of nematodes. 3
b) What do you mean by following conditions? 4
i) Summer sore, ii) Sweating blood, iii) Humpsore, and iv) Nurse cell.
10. a) Show the nematodes of dogs according to predilection site in a diagram. 4
b) Design the control measures against public health significant nematodes. 3
11. a) Write down the life cycle and pathologic significance of *Haemonchus contortus* infection in a heifer. 4
b) Write down the pathologic significance of kidney worm of pig. 3
12. State the important morphological characteristic of the following nematodes. 7
a) *Trichuris suis*, b) *Syngamus trachea*,
c) *Toxocara vitulorum*, d) *Strongylus vulgaris*,
e) *Stephanofilaria assamensis*, f) *Ascaridia galli*, and
g) *Oesophagostomum radiatum*.