

Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination, 2016
Course Title: General Microbiology (Theory)
Course Code: GMC-201 (T)
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 bacterium. Give labeled diagram of a typical bacterium. 5
b) Discuss the physical and chemical nature and functions of bacterial cell wall. 6
2. a) Mention the contributions of Robert Koch and Louis Pasteur in Microbiology. 6
b) Discuss the history and scopes of Microbiology in human civilization. 6
3. a) Make a list of common disinfectants used in veterinary practice. 3
b) Where and how dry heat, flame, ionizing radiation and filtration are used for sterilization? 6
c) Classify bacteriological media. 3
4. a) Describe in brief the characteristics of non specific host defense mechanism. 3
b) What are the specific roles of macrophages in the non specific host defense mechanism? 6
c) What are anaphylotoxins and the terminal complement complex (TCC)? 3

Section-B

5. a) Describe point and deletion mutants seen in bacteria. How does mutation differ from genetic recombination? 4
b) Differentiate between streak and pour plate method used for isolation of bacteria 4
c) How mRNA is synthesized in Bacteria? 3
6. a) Describe the functions of 'F', 'R' and 'Col' plasmid. 3
b) Enumerate the basic steps of recombinant DNA technology. 5
c) Differentiate between chronic carrier and convalescent carrier animals. 4
7. a) List the important mycotoxins along with disease they cause. Describe the morphological features of molds, yeast, yeast like fungi and dimorphic fungi. 5
b) What are the possible routes through which microorganisms can enter into animal body? 3
c) Give the characteristics of endotoxin produced by bacteria. 4
8. Write short note on any three of following: 4x3=
12
 - a) Protists
 - b) Flagella
 - c) Bacterial colony
 - d) Genetic code




(Answer any Five questions from each section. Use separate answer script for each section)

Section-A

1. a) What is the basis of classification of necrosis? Write down the gross and microscopic lesions of liquefaction necrosis. 4
b) Why does heterolysis occur only in living individual? What are the early indications of postmortem autolysis? 3
2. a) Briefly discuss the causes and pathologic mechanisms of fatty change in liver. 5
b) How will you differentiate fatty change from glycogen deposition in a hepatocyte? 2
3. a) Define the following terms (any four): 2
i) Aplasia, ii) Anaplasia, iii) Metaplasia, iv) Hyperplasia, and v) Neoplasia.
b) Mention the causes of developmental anomalies and malformation. Enlist ten developmental anomalies found in animals. 5
4. a) Briefly discuss the causes of metastatic calcification. Write down the microscopic lesions of dystrophic calcification. 5
b) How will you differentiate melanomas from melanosis by DOPA test? 2
5. a) Write down the mechanism of formation of heart failure cell. 2
b) What is kernicterous? 2
c) Interpret the various findings of "Vanden Bergh" reaction. 3
6. a) Write down in vivo properties of neoplastic cells. 5
b) Differentiate a benign neoplasm from malignant one in a tabular form. 2

Section-B

7. a) Define pathology and mention the purposes of pathology. 3
b) Write down the microscopic changes found in dead cells. 4
8. a) What is septicemia? 1
b) Write down the microscopic lesions of the following conditions: 6
i) Moist gangrene, ii) Infarcts, and iii) Zenker's necrosis.
9. a) What do you mean by pathologic ossification? Give four examples of pathologic ossification. 3
b) Show the mechanism of articular gout in sketch form. 3
c) What is pneumoconiosis? 1
10. a) Write down the pathogenesis of hemolytic and toxic jaundice. 5
b) Show the process of photosensitization dermatitis in sketch form. 2
11. a) How radiation can induce neoplasm? 3
b) Name four oncogenic viruses and four oncogenic parasites. 2
c) Write down the microscopic lesions of anaplastic cells. 2
12. a) Briefly describe possible outcome of necrotic tissues. 4
b) Define and classify atrophy. 3



Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination, 2016
Course Title: Platyhelminthes & Malacology (Theory)
Course Code: PLM-201 (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) Write down the criteria of host and parasite. 2
 b) Briefly describe the various routes and sources of parasitic infection with example in each case. 5
2. a) Describe various developmental stages of a typical digenetic trematode with diagram. 4
 b) Differentiate the followings: 3
 - i) Eggs of *Fasciola* sp. and eggs of *Paramphistomum* sp.
 - ii) Biological vector and mechanical vector, and
 - iii) Reservoir host and carrier host.
3. a) Mention the general morphological characteristics of a typical cestode. 2
 b) Compare coenurus and cysticercus in context of their morphology and pathogenicity. 2
 c) Sketch the life cycle of *Diphyllobothrium latum*. 3
4. a) Mention the general morphology of snail. 2
 b) Write down the importance of snail in veterinary parasitology. 3
 c) Name four snails with the name of parasitic infection that may be transmitted by them. 2
5. a) What is symbiosis? Describe various symbiotic relationships with examples. 3
 b) Sketch the life cycle of *Fasciola gigantica*. How the bottle jaw is developed in case of fascioliasis? 4
6. a) Describe pathogenic significance of gid disease. 2
 b) Write a short note on "Swimmer's itch". 2
 c) Briefly describe life cycle and pathogenic significance of *Davainea proglotina*. 3

Section-B

7. a) What do you mean by Platyhelminthes? Write down the difference between trematode and cestode in a tabular form. 4
 b) Define parasitic zoonoses. Mention six zoonotic important trematodes and cestodes with their host (D. H. and I. H.), predilection site and geographical distribution. 3
8. a) Define and classify parasitic immunity with examples. What are the indications of development of parasitic resistance in host animal? 4
 b) What do you mean by inverse age resistance and concomitant immunity? 3
9. a) Enlist the veterinary important species of Schistosomatidae family with their hosts and predilection sites. 3
 b) Mention the differences between the life cycle of blood fluke and Chinese liver fluke. 4
10. a) Write down the morphological differences between following parasites: 4
 - i) *Moniezia expansa* and *M. benedeni*, ii) *Echinococcus granulosus* and *E. multilocularis*.
 b) Mention the life cycle and pathogenic significance of *Taenia solium*. 3
11. a) What is anthelmintic? Enlist the properties of ideal anthelmintic. 4
 b) Write down the scientific name and brief pathogenic significance of following parasites: 3
 - i) Conical fluke of deer, and ii) Lung fluke of cat.
12. a) Briefly describe the morphological features of Cyclophyllidean cestode with diagram. 4
 b) Name two Pseudophyllidean and two Cyclophyllidean cestodes with their hosts and locations. 3

Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination 2016
Course Title: Animal Nutrition (Theory)
Course Code: ANT 201 (T)
Full Marks: 70; Time: 3.0 Hours

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(Figures in the right margin indicate marks. Answer any **Three** questions from each section of which **Question No. 1 & 5 are Compulsory**. Use separate answer script for each section)

Section-A

1. a) Define diet, nutrient, total digestible nutrient (TDN) and animal nutrition. 2.0
b) Briefly discuss the Van Soest method of feed analysis for partitioning of ADF and NDF from animal feed. 4.0
c) What are the non-starch polysaccharides (NSPs)? How they are important for ruminants? Is carbohydrate dietary essential for ruminant livestock? 5.0
2. a) What is gluconeogenesis? Why gluconeogenesis is an especially inevitable process for high yielding lactating dairy animals? 4.0
b) Define digestion. Outline the steps for conducting a conventional digestibility trial using growing steers. 4.0
c) Define essential amino acid. 'All amino acids are physiologically essential, but not dietary essential for ruminants'-explain with example. 4.0
3. a) Name five locally available important agro-industrial by-products and discuss their roles in ruminant nutrition. 4.0
b) Briefly discuss the procedures for improvement of the nutritive value of poor quality rice straw available in Bangladesh. 4.0
c) Discuss the procedure for utilization of non-protein nitrogen (NPN) for ruminant livestock. 4.0
4. a) Classify lipids. Briefly discuss the procedures for efficient utilization of different types of lipids in ruminant animals. 6.0
b) 'Fat or oil'- which one is better supplement for high yielding dairy cow? How unsaturated fatty acids are converted into saturated fatty acids in animal body? 6.0

Section B

5. a) How volatile fatty acids (VFAs) are formed and utilized in animal body? Which dietary factors regulate them in case of ruminant animals? 6.0
b) Briefly discuss the systematic procedure for nutritional evaluation of maize stover. 5.0
6. a) Classify minerals. Discuss the role of minerals in the metabolism of carbohydrate. 4.0
b) What are pro-vitamins? List the pro-vitamins available in plant cells. How vitamin-D helps in absorption of calcium from intestine? 4.0
c) Briefly discuss the vitamin-mineral interrelationship in animal body. 4.0
7. a) Briefly discuss the characteristics of a balanced ration. How proportion of roughage to concentrate affects milk yield in dairy animals? 4.0
b) How digestion of lipids and proteins ultimately affect the utilization of carbohydrates in animal body? 4.0
c) Outline the mechanisms for inter-conversion of carbohydrate, protein and lipid in animal body with schematic diagram. 4.0
8. a) Write short notes (**Any three**) on: 4x3= 12.0
 - (i) Urea molasses multi-nutrient block
 - (ii) Feeding standard
 - (iii) Secondary fermentation
 - (iv) Trans fatty acid

Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination, 2016
Course Title: Environmental Hygiene and Bio-security (Theory)
Course Code: EHB -201 (T)
Full Marks 35; Time: 2 Hours




(Answer any **three** questions from each section. Question number 1 is compulsory from section A. Use separate answer script for each section)

Section-A

1. a) Define health and hygiene. 2
b) Write down the tasks of environmental hygiene. 2
c) Mention five water borne diseases of poultry along with their causal agents. 1
2. a) What is soil? Describe relation between soil and life. 3
b) Classify soil on the basis of its physical nature. 2
c) Mention five common soil borne diseases of goats along with their causal agents. 1
3. a) Write down the physical properties of water? 2
b) Briefly discuss the artificial process of water purification and mention two commercially available products used for water purification. 2
c) How do you collect and send water sample for chemical and microbiological tests? 2
4. a) Classify the methods of disposal of carcass and discuss the burning methods of disposal of carcass. 2
b) What are the precautions that should follow during the transportation of anthrax affected cattle (carcass)? 2
c) Describe the process of collection and storage of liquid manure. 2

Section-B

5. a) Differentiate between antiseptic and disinfectant. 1
b) Enumerate the measures that should be taken for prevention and control of infectious disease. 5
6. a) Briefly describe the methanogenesis process of complex organic animal wastes. 3
b) Give a brief description of cesspool and septic tank. 3
7. a) Define sanitation. Illustrate the collection and storage techniques of liquid manure in a cow shed. 1
b) What are the consequences of acid raining? Mention the measures that should be taken to prevent acid raining. 5
8. a) Define bio-safety risk. What are the possible ways through which diseases can be introduced and spreaded in farm? 3
b) Enlist the bio-security measures considering staff and visitors in a poultry farm. 3



Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination, 2016
Course Title: Animal Genetics (Theory)
Course Code: AGN-201 (T)
Full Marks: 70 ; Time: 3.0 Hours

(Figures in the right margin indicate marks. Answer any **Three** questions from each section of which **Question No. 1 & 5 is Compulsory**. Use separate answer script for each section)

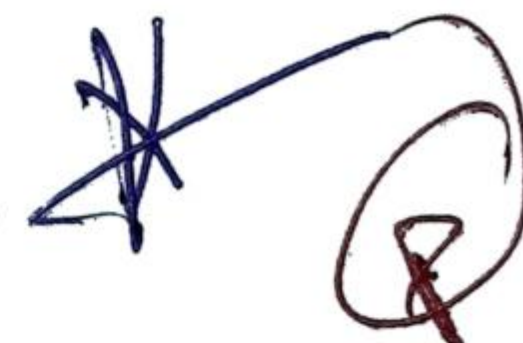
Section-A

1. a) Write down the modern working definition of a gene. What do you mean by regulatory and homeotic genes? 3.0
b) Define Allele. Exon, Intron, Promoter, Dominant, Pleiotrophy, Phenocopy, Variation, Euploid and Heterozygote. 5.0
c) Differentiate eukaryotic genes from prokaryotic genes. 3.0
2. a) Write the modification of Mendelian ratios. 3.0
b) Differentiate dominance from incomplete dominance. 3.0
c) Explain the Mendelian law of Independent Assortment with a suitable example of animal. 6.0
3. a) Define linkage. Differentiate between linked genes and syntenic genes. 3.0
b) Describe the arrangement of linked genes. 4.0
c) What are the significances of crossing over? Write in short about different types of crossing over. 5.0
4. a) Define sex-linked and holandric genes. 2.0
b) Enlist different types of genetically controlled mechanisms of sex determination. Describe the sex chromosome mechanism of sex determination. 6.0
c) Differentiate sex limited traits from sex influenced traits with examples. 4.0

Section-B

5. a) What is meant by chromosomal aberration? 2.0
b) Differentiate intrachromosomal aberration from interchromosomal one. 2.0
c) What do you mean by "genetic code."? Mention the characteristics of genetic code. 3.0
d) Write in details about the characteristics of genetic materials. 4.0
6. a) Classify and exemplify gene mutation based on changes in gene action and protein products. 6.0
b) Define aneuploidy. Write in details about different types of aneuploidy in animals. 6.0
7. a) Define chromosome. Mention chromosome number in following animals-Cattle, Duck, Cat, Buffalo (Swamp type), Elephant and Rabbit. 4.0
b) Describe structures of an eukaryotic chromosome with a schematic diagram. 5.0
c) Write in short about the special type of chromosomes that are found in the growing oocyte of animals. 3.0
8. Write short note on any (three) from the followings. 3×4=12
a) Single gene disorders.
b) Post-transcriptional modifications of RNA.
c) Penetrance and Expressivity.
d) Gene expression.

Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination, 2016
Course Title: Zoo, Wild and Lab Animal Management (Theory)
Course Code: ZAM-201 (T)
Full Marks: 35; Time: 2.0 Hours



(Figures in the right margin indicate full marks. Answer any **Three** questions from each section where **Question No. 5 is Compulsory**. Use separate answer script for each section)

Section-A

1. a) Elaborate the following terms (Any six): 6.0
 - (i) Feral animal
 - (ii) Territory
 - (iii) Wildlife sanctuary
 - (iv) Biodiversity
 - (v) Safari park
 - (vi) Symbiosis in wild animal
 - (vii) Carrying capacity

2. a) Write down the general ethical guidelines for using laboratory animals in scientific research. 3.0
b) Briefly discuss the breeding, nutrition and reproduction of mice and guinea pig. 3.0

3. a) Shortly discuss the mission of IUCN, CITES, CBSG and WWF. 2.0
b) Describe the components of wildlife habitat. 2.0
c) List the extinct vertebrates of Bangladesh. 2.0

4. a) Write down the general characteristics of carnivores. 2.0
b) How will you manage a juvenile python? 2.0
c) Differentiate in situ conservation from ex situ conservation. 2.0

Section-B

5. a) What are the veterinary facilities that should be available in a modern zoo? 2.0
b) The following information is available for the royal Bengal tiger of Bangladesh. Analyze the category of threat for this animal 3.0
 - Extent of occurrence 10000 km²
 - Population is highly reduced in last 20 years
 - Habitat is moderately fragmented
 - 5 % of the habitat locates in the protected areas
 - Human impact is highly negative
 - Has moderate intrinsic capacity to adapt

6. a) Briefly discuss the steps of captive breeding program adopted for threatened wild animals. 3.0
b) Briefly discuss the abnormal behaviors of captive wild animals. 3.0

7. a) Define restraints. Discuss different types of zoo animal restraining methods. 2.0
b) Briefly discuss the characteristics of diet for captive animal. 2.0
c) List the protected areas (Wildlife sanctuary and game reserve) with type of forest and location in Bangladesh. 2.0

8. a) Give a balanced diet for a rhesus monkey and a black bear. 2.0
b) List the zoos and safari parks in Bangladesh. 2.0
c) Write down the taxonomy of rabbit. 2.0

20

Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination, 2016
Course Title: Neuro-Endocrine & Reproductive Physiology (Theory)
Course Code: NRP-201 (T)
Full Marks 35; Time: 2 Hours

(Figures in the right margin indicate full marks. Answer any **three** questions from each section of which question No.1 is compulsory. Use separate answer script for each section.)

Section-A

1. a) Define and classify hormones based on the distance travelled by them. 2
b) Explain the purpose of hypothalamic-hypophyseal portal system in establishing neuro-endocrine system. 1
c) List the endocrine glands with their hormones located above the diaphragm. 2
2. a) Define threshold stimulus. Discuss the effects of a threshold stimulus on the axon of a neuron. 4
b) Mention the main functional differences between afferent and efferent division of visceral nervous system. 2
3. a) Briefly discuss the maintenance of endometrium following a successful implantation. 3
b) Describe the hormonal contribution in the development of corpus luteum in a heifer. 3
4. Write short notes on (**Any three**) 3x2=6
 - a) Aldosterone escape
 - b) Referred pain
 - c) Rhodopsin cycle
 - d) Mechanism of hearing
 - e) Spermatogenesis

Section-B

5. a) Sketch the mechanism of action of steroid hormone. 2
b) Why cortisol is known as stress hormone? How aldosterone secretion being regulated? 2
c) Define estrus. Draw the fluctuation of reproductive hormones during estrous cycle of a cow. 2
6. a) What do you mean by nymphomania? On a tabular format, mention the positive signs of pregnancy at rectal palpation of a cow. 2
b) Who is the initiator of giving birth? Cite the birthing process with list of hormones. 2
c) Define uterine milk. Write down the physiological role of uterine milk in gestation. 2
7. a) What is conditional reflex? Draw the possible combination of reflex action. 2
b) Cite the precursors of catecholamine. Enumerate the syntheses mechanism of adrenergic neurotransmitter. 2
c) Define synaptic fatigue. Diagrammatically show the synaptic transmission along the nerve fiber. 2
8. a) What is receptor? Write down the location and functions of muscarinic and mechanoreceptors. 2
b) Describe physiological role of testosterone in buck. Cite the time of descent of testes in different species. 2
c) "All receptors are trasducer"- justify the statement. 2

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Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination-2015
Course Title: Zoo, Wild and Lab Animal Management (Theory)
Course Code: ZAM-201 (Theory)
Full Marks: 35; Time: 2 Hours

201

(Figures in the right margin indicate full marks. Answer any **three questions** from each section where **question no. 5 is compulsory**. Fractions of a question must be answered together. Use separate answer script for each section.)

Section-A

1. a) Elaborate following terms (Any six): 6.0
Wildlife, Captive breeding, Reintroduction, Extinction, Ecological succession, *In situ* breeding, Wildlife sanctuary and Botanical garden.
2. a) Write down the taxonomies of rabbit and guineapig. 2.0
b) Mention the birth weight, adult weight, gestation period, litter size, feed intake and life span of rabbit. 4.0
3. a) Differentiate Zoo from Safari park. 2.0
b) Categorize animals according to their food habits. 2.0
c) Write down the general management procedure of wildlife. 2.0
4. a) Explain the importance of wildlife conservation. Briefly discuss the causes of wildlife extinction and explain their remedies. 2.0
b) What are the possible dietary problems of captive animals? 2.0
c) What facilities should you consider for establishing a modern zoo? 2.0

Section-B

- 5 a) Briefly discuss the main diagnostic characteristics of the class Amphibia, Reptilia and Mammalia. 2.0
b) Draw the structure of the national categories adopted by IUCN. A leopard has the following characteristics: 3.0
 - Extent of occurrence is <4500 square kilometer.
 - Population is highly reduced in the last 20 years.
 - Habitat is highly fragmented.
 - Habitat condition is highly degraded.
 - Habitat is under 5% of the protected areas.
 - Human impact is highly negative.
 - Very low intrinsic capacity to adapt.Is the leopard threatened? If yes, under which national categories?
- 6 a) Define IUCN. Mention four animals which are red listed from IUCN. 3.0
b) Briefly discuss the procedure you should consider for supplying foods for zoo animals. 3.0
- 7 a) Briefly discuss the management procedure of a juvenile crocodile. 3.0
b) Give a balanced diet for a hippopotamus and a lion. 3.0
- 8 a) Briefly discuss the incubation behavior of a python. 3.0
b) Explain the mating behavior of tiger. 2.0
c) Differentiate monkeys from apes. 1.0

Chittagong Veterinary and Animal Sciences University
DVM 2nd Year 1st Semester Final Examination-2015
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201

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Section-A

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|----|---|--------|
| 1. | a) What is DNA? Describe linear DNA replication process in bacteria. | 5 |
| | b) What do you mean by genetic code and non-sense code? | 2 |
| | c) Describe the translocation process in protein synthesis. | 4 |
| 2. | a) What is toxoid ? Discuss its preparation process. | 6 |
| | b) Differentiate among toxin, endotoxin and mycotoxin. | 3 |
| | c) Define virulence and pathogenicity. | 3 |
| 3. | a) What do you mean by bacterial genetic recombination? | 3 |
| | b) How many types of genetic recombination do occur in bacteria? What are they? | 3 |
| | c) Describe bacterial transformation. | 6 |
| 4 | Write notes on the following: | 3X4=12 |
| | a) Nosocomial infection | |
| | b) Bacteriological media | |
| | c) Prokaryotes and eukaryotes | |
| | d) Dimorphic fungi | |

Section-B

- | | | |
|----|---|---|
| 5. | a) Enumerate the branches of bacteriology. | 3 |
| | b) What is "Miasmatic theory of disease"? Write down the contribution of Robert Koch towards the development of microbiology. | 5 |
| | c) List major characteristics of prokaryotic protists. | 3 |
| 6. | a) How do Gram (+) bacteria differ from Gram (-) bacteria | 4 |
| | b) What are the chemical compositions of bacterial cytoplasmic membrane, outer membrane, capsule, flagella, pili and endospore. | 4 |
| | c) How does an endospore germinate to a vegetative cell? | 4 |
| 7. | a) What is synchronous growth of bacteria? Describe the roles of oxygen on the growth of bacteria | 3 |
| | b) Sketch the relationship between bacterial nutrition and metabolism. | 5 |
| | c) Where and how moist heat is used for sterilization? | 4 |
| 8. | a) Classify fungi on the basis of sexual reproduction? | 3 |
| | b) List differentiating features of fungi from bacteria | 3 |
| | c) Describe different virulence factors of bacteria | 6 |

Chittagong Veterinary and Animal Sciences University
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201

(Figures in the right margin indicate full marks. Answer any **three** questions from each section of which question number 1 is compulsory. Fractions of the questions must be answered together. Use separate answer script for each section.)

Section-A

- | | | |
|----|---|---|
| 1. | a) Define environmental hygiene and health. | 2 |
| | b) Write down the importance of environmental hygiene. | 2 |
| | c) State scopes of environmental hygiene. | 1 |
| 2. | a) What is auto purification of soil? | 1 |
| | b) Mention five common soil-borne and five water borne diseases along with their causal agents. | 2 |
| | c) Briefly describe sanitary improvement of soil in a farmyard. | 3 |
| 3. | a) What is relative humidity and fog? | 1 |
| | b) How will you control air-borne infection? | 2 |
| | c) Mention different types of ventilation along with figures. | 3 |
| 4. | a) What are the properties of hygienically pure water? | 1 |
| | b) Mention the common dissolved impurities of water. | 3 |
| | c) Write down the processes of water purification. | 2 |

Section-B

- | | | |
|----|---|-----------|
| 5. | a) Define bio-security and biosafety. | 2 |
| | b) Briefly describe general biosecurity procedures practiced in an animal farm. | 4 |
| 6. | a) Briefly describe methods commonly used for disposal of animal carcass in Bangladesh. | 3 |
| | b) Write down the objectives of disposal of animal waste. | 3 |
| 7. | a) What is isolation and quarantine? | 1 |
| | b) What hygienic measures should be taken for prevention of infectious disease? | 3 |
| | c) What are influences of climate on animal health? | 2 |
| 8. | Write short notes on any three (3) of the following | 2X3
=6 |
| | i) Spring and well | |
| | ii) Biosafety risks | |
| | iii) Radiation injury | |
| | iv) Collection and storage of liquid manure | |