Chattogram Veterinary and Animal Sciences University

MS in Microbiology Final Examination

January – June Semester, 2021

Course title: Advanced General Bacteriology

Course Code: AGB-601

Full marks: 40; Time: 2 hours

Answer any 4 (FOUR) Questions.

1. What do you mean by Potists and Archaebacteria? Write down the major chemical constituents of cell wall of Gram-positive bacteria. What is an endospore and what make an endospore more resistant to chemical and physical treatments? 10

2. Classify bacteria on the basis of carbon requirement for growth and flagellar distribution. Describe a typical growth curve of bacteria. What do you mean by D-value? 10

3. What are the major differentiating features of two catabolic pathways, Fermentation and Respiration, seen in bacteria? How is a proton gradient formed across the plasma membrane of a bacterium by the Electron Transport System? 10

4. Write down the functions of Genetic Code, Codon and Anticodon. Where are they located in microorganisms? Describe the mechanisms how proteins are synthesized in bacteria. 10

5. What is a constitutive enzyme and an inducible enzyme for microorganisms? Write in brief the types of mutations seen in bacteria? What are the ways by which mutant bacterial cells can be detected? 10

Chattogram Veterinary and Animal Sciences University

Department of Microbiology and Veterinary Public Health

MS in Microbiology; January-June Semester, 2021

Subject: Industrial Microbiology, Course code: IMS-601

Total Marks: 40; Time: 2 hours

(Figures in the right margin indicate full marks. Answer any four questions)

1	a)	Mention the enzymes that are useful in food processing and textile finishing.	2
	b)	Write down the difference between primary and secondary metabolites of beneficial microbes.	3
	c)	Briefly describe the components and conditions that must be satisfied by fermentation media for microbes for optimum production.	5
2	a)	Write down the goal of screening. Why is the secondary screening process important and what are the parameters you will reveal during this stage?	4
	b)	Sketch the outline of the conventional waste water treatment process.	3
	c)	Justify the statement, "fermented foods contain more diverse nutrients than raw foods".	3
3	a)	Define Biosafety? What are the health hazards frequently associated with fermentation industry?	3
	b)	Enlist five probiotic organisms that used for fermentation of specific foods items.	2
	c)	Suppose you are appointed as a microbiologist at the CDC and you are working with SARS CoV-2. Which level of BSC will you choose and briefly describe the infrastructure as well as laboratory facilities of these BSC?	5
4	a)	What is wort? Classify the wine based on the alcoholic percentages.	3
	b)	Design a modern fermenter that satisfies all the critical needs for microbes and successful operation.	5
	c)	Enlist the biological and bio-chemical parameters for bioreactors.	2
5	a)	Briefly describe the ethanol production process and its commercial applications in different sectors.	5
	b)	Write down the following short notes: I. Single cell protein II. HEPA filter	2.5 x2 =5

Chattogram Veterinary and Animal Sciences University

MS in Microbiology

January-June Semester, 2020

Advanced General Virology

Course code: AGV: 601

Total Marks: 40; Time: 2 hours

(Figures in the right margin indicate full marks. Answer any four questions)

1	Elucidate uniqueness of virus with suitable example	10.0
2	Mention contribution of different scientists in the field of virology	10.0
3	Explain different virus purification procedures	10.0
4	Explain replication process of positive sense of single stranded RNA virus	10.0
5	What are the antiviral drugs available and mention their mode of action?	10.0

Chattogram Veterinary and Animal Sciences University

Department of Microbiology and Veterinary Public Health

MS in Microbiology; January-June Semester, 2021

Subject: Mycology and Microbiology of Atypical Bacteria, Course code: MMB-601

Total Marks: 40; Time: 2 hours

(Figures in the right margin indicate full marks. Answer any four questions)

1	a)	Appraise the selective media and laboratory tests you will perform for the differentiation of dermatophyte species.	4
	b)	Enlist five fungal stains that are routinely used for the identification of fungus.	2
	c)	Briefly describe the virulence attributes of different pathogenic *Mycoplasma* species.	4
2	a)	Tabulate the different disease conditions produced by different species under the family Rickettsiaceae and Anaplasmataceae.	4
	b)	Write down the modes and sites of action of antifungal drugs with relevant examples.	4
	c)	Enlist five toxigenic cyanobacteria.	2
3	a)	How will you identify the different *Aspergillus* species based on colony morphology and pigmentation?	3
	b)	What are the disease conditions produced by *Candida albicans* in dogs? How will you recover and identify this organism from disease lesions?	4
	c)	Write down the phenotypic properties of *Coxiella. Burnetii.*	3
4	a)	Mention the unique properties of *Chlamydia* and *Chlamydophila* species and write down the difference between EB and RB.	4
	b)	Write down the chronological diagnostic procedure of *Malassezia pachydermatis* infection in a dog.	4
	c)	Enlist the clinical conditions produced by the order Mucorales.	2
5	a)	Write down the mold and yeast form of different dimorphic fungi with the diagram.	6
	b)	Write down the following short notes:	2x2
		I. Mycotoxicosis in ruminant	=4
		II. Life cycle of *Pythium insidiosum*	

Chattogram Veterinary and Animal Sciences University
MS in Microbiology Final Examination

January – June Semester 2020

Course title: **Food Microbiology**

Course Code: FMB-601

Full Marks- 40, Time- 2 Hours

Answer any **four** questions; Figures in the right margin indicate full marks

1. a) Define foodborne disease outbreak. Design a guideline for investigating an outbreak of food-borne salmonellosis. **5**

b) Enlist common foodborne bacterial diseases with their causal agent, incubation period, duration of illness and food involved. **5**

2. a) Complete the table below: **5**

Common name / condition	Name of causal organism
Dairy molds/ machinery molds	
Sulfide stinker spoilage of canned food	
	Pseudomonas synxantha
Surface ropiness of milk	
White spot of meat	
Ropiness of bread	*Enterobacter cloacae*
	Trichotheciumroseum
Residual proteolysis of milk	
Whiskers on meat	
Spoilage of honey	

b) Write down the causes of spoilage of heated canned food and give a short description of biological cause of spoilage. **5**

3. a) Which factors affect the heat resistance of microorganisms? **3**

b) Explain the influences of water activity (aw) and oxidation-reduction (O-R) potential on the growth of microorganisms in food. **4**

c) Enlist five chemical preservatives with maximum tolerance, organism affected and their uses. **3**

4. a) What do you mean by single-cell protein (SCP)? Describe the nutritive value and uses of SCP. **4**

b) Define CCP1 and CCP2.Sketch down the source of contamination and critical control points in amilk processing plant. **4**

c) Describe the spoilage of meat under anaerobic conditions. **2**

5. Write short note on any **four** - **2.5×4=10**

i) Wine

ii) Physical and chemical changes of rotten fish

iii) Off flavours of eggs

iv) Defects of can

v) Properties of an ideal antimicrobial preservative

Chattogram Veterinary and Animal Sciences University

MS in Surgery January-June Semester Final Examination 2021

Subject: Large Animal Anaesthesiology

Course code: LAA 601

Total Marks: 40

Total time: 2 hours

(Please answer any four from the following questions. Figures in the right margin indicate full marks)

Q 1. 5x2 = 10

a) Write down the name and doses of five analgesic agents in cattle and horse.
b) What are the complications associated with general anaesthesia in cattle and how will you overcome those?

Q 2. 5x2 = 10

a) Calculate maximum volume of 2% lidocaine that could be given to a 30 kg goat.

b) Write down the injectable general anaesthetic protocol for an adult horse.

Q 3. 5x2 = 10

a) Write down the protocol of distal paravertebral nerve block in a cow.
b) Write down the protocol of low epidural anaesthesia in a calf.

Q 4. 5x2 = 10

a) Write down the anaesthetic technique for horn fracture management in a 4-year adult cattle.
b) Write down the protocol for injectable general anaesthesia in cattle.

Q 5. 5x2 = 10

a) What is double drip? How will you prepare double drip for general anaesthesia in cattle?
b) Write down the technique of retrobulbar nerve block for eyeball enucleation in a horse.

Q 6. Write short note of any two 5 x2 = 10

a) Muscle relaxant b) Peterson's nerve block c) Intravenous regional analgesia.

Faculty of Veterinary Medicine
Department of Medicine and Surgery
MS in Theriogenology Final Examination, 2021
January-June Semester, 2021
Subject: Advances in Andrology and Male Infertility
Course Code: AMI-601, Janu-June, 2021
Total Marks: 40, Time: 2 hours

Figures in the right margin indicate full marks. Answer any four of the following questions

1. Summarize the sexual behavior of a male. How do you collect semen from a buck? 10

2. What are the causes behind male infertility in Bangladesh? How do you minimize the causes behind infertility? 10

3 What are the causes behind loss of semen quality? How do you improve the semen quality? 10

4. Name the semen born diseases. Describe the procedure for detection of semen borne diseases? 10

5. Write down the procedure of breeding soundness evaluation in a bull for breeding purpose. 10

6. Write short notes on any two of the following 5×2

   a. Management of breeding bull

   b. AI record keeping

   c. Semen preservation

M.S. in Surgery; January-June Semester-2021
Subject: **Large Animal Surgery (Theory)**
Course code: LAS 601

Total Marks: 40 **Time: 2 (two) hours**

Department of Medicine and Surgery
Faculty of Veterinary Medicine
Chittagong Veterinary and Animal Sciences University

(*Figures in the right margin indicate full marks. Answer any **FOUR** questions*)

1. (a) What are the stages of wound healing? How do you treat an open wound on an animal? 03
   (b) Mention the principles of wound management and healing in animals 03
   (c) Write the diagnosis and treatment of a cow suffering from left sided abomasal displacement in a cow. 04

2. (a) What antiseptics are commonly used in surgery? Write down the most recommended antiseptic for surgical operations? 03
   (b) How will you prepare the surgical site for an abdominal surgery in large animals? 04
   (c) Mention the postoperative management of C-section in large animal surgery. 03

3. (a) How will you perform dehorning in a Holsten Friesian cow? 03
   (b) Write down the etiology, clinical signs, diagnosis and treatment for umbilical hernia in a male calf. 05
   (c) What are the merits and demerits of midline incision for laparotomy in animals? 02

4. (a) What is large animal surgery? What is the difference between a small animal vet and a large animal vet? 03
   (b) How will you repair a chronic rectal prolapse in calves? 04
   (c) Write down the use of episiotomy for easy parturition of cow in the field. 03

5. (a) What is Theloscopy? What are the common surgical affections of teat in cow? 03
   (b) What are the causes, treatment and management of udder edema in a cow? 04
   (c) How will you perform castration in Bulls? 03

6. Write short notes on ***any two*** of the followings- 2x5=10
   (a) Correction of dermoid cyst in a cow
   (b) Laparoscopic cryptorchidectomy
   (c) Trimming of claws in goat
   (d) Use of Thomas splint in large animals

Chittagong Veterinary and Animal Sciences University
Faculty of Veterinary Medicine
Department of Medicine and Surgery
MS in Theriogenology Final Examination, 2021
January-June Semester, 2021
Sub: Advances in Obstetrics
Course Code: AOB-601, Janu-June, 2021
Total Marks: 40, Time: 2hrs

Answer any 5 of the following questions

1.	What is fertilization? How does conceptus develop in animals? Describe briefly	8
2.	Explain the stages of parturition in ruminant. How induce parturition in a cow?	8
3.	Write short notes on obstetrical anesthesia in ruminants. Describe the procedure of treatment of vaginal prolapse in cow.	8
4.	Treat the case of dystocia of a registered goat in SAQTVH, CVASU.	8
5.	Summarize the hormonal relationship during pregnancy in animals. Why does the dam become immunologically weak in pregnancy? Describe briefly	8
6.	What are the causes of teratogen? Name the some teratology and developmental anomalies in animals. How will you prevent the teratology?	8
7.	Describe the procedure of involution of uterus in goat.	8

Chattogram Veterinary and Animal Sciences University
Faculty of Veterinary Medicine
Department of Medicine and Surgery
MS in Theriogenology Final Examination, 2021
Semester: January–June
Subject: **Reproductive Hormones**
Course code: RDH–601

Figures in the right margin indicate full marks. Answer any **five** questions.

Total Marks: 40 Time: 2 hours

1. a. Describe origin and function of neuro-hormones regulating reproduction. 04
   b. Classify reproductive hormones according to chemical structure. 04

2. a. Explain the changing concepts in regulation of mammalian reproduction. 04
   b. What type of cell signalling does the endocrine system use? Explain. 04

3. a. Discuss mechanism of action of endocrine hormones. 04
   b. How hormone secretion regulates in animal body? 04

4. a. Define and classify growth factors. 04
   b. Write down the name, mode of action and function of five growth factors. 04

5. a. How can you measure hormonal imbalance under field and laboratory conditions? 04
   b. Write down the principles of hormone therapy. 04

6. Write short notes (any two) on: 4×2
   a. Clinical uses of hormones
   b. Placental hormones
   c. Commercially available hormones in Bangladesh

Chattogram Veterinary and Animal Sciences University
Faculty of Veterinary Medicine
Department of Medicine and Surgery
MS in Medicine
Semester: January – June' 2021
Subject: Production Diseases of Dairy Animals
Course Code: PDD 601, Credit: 02
Total Marks: 40
Time: 02 (Two) Hours

(*Figures in the right margin indicate full marks. Answer any* ***FOUR*** *questions*)

1. (a) Define Production Diseases in Dairy Animals. **01**
   (b) Mention 06 (Six) Production Diseases of Dairy Animals. **01**
   (c) Write down the etiology, risk factors, clinical signs, diagnosis, treatment and control of Sub – clinical mastitis in does. **08**

2. (a) Define gestation. **01**
   (b) Mention the common causes of termination of gestation in dairy cattle of Bangladesh perspectives. **03**
   (c) Write in details the mode of action reproductive hormones in dairy cows. **06**

3. Describe the synonyms, etiology, clinical signs, diagnosis, treatment, prevention and control of Pregnancy toxemia in ewes. **10**

4. Write down the etiology, clinical signs, diagnosis, treatment, prevention and control of Lactation Tetany in mares. **10**

5. Describe the etiology, risk factors, clinical signs, diagnosis, treatment, prevention and control of Milk fever in cows. **10**

6. Write down the etiology, risk factors, clinical signs, diagnosis, treatment, prevention and control of Transport tetany in ewes of Bangladesh perspectives. **10**

– GOOD LUCK –

Chattogram Veterinary and Animal Sciences University
Faculty of Veterinary Medicine
Department of Medicine and Surgery
MS in Medicine Final Examination, 2021
Semester: January–June
Subject: **Veterinary Dermatology**
Course code: VED–601

Figures in the right margin indicate full marks. Answer any **five** questions.

Total Marks: 40 Time: 2 hours

1.	a. Discuss the essential and optional equipment for dermatological tests.	04
	b. Write common strains used on cytology samples and histopathology sections.	04
2.	a. Describe the various cytological sampling techniques.	04
	b. Design algorithm for cutaneous cytology.	04
3.	a. Explain hair plucks and trichograms.	04
	b. Sketch skin biopsy technique in animal for dermatological examination.	04
4.	a. Write down the epidemiology and prevention of lumpy skin disease.	04
	b. How you can develop a vaccine to combat papillomatosis?	04
5.	a. Write down the clinical findings, diagnosis and treatment of flea allergy dermatitis in dog and cat.	04
	b. How to manage a case of canine Malassezia dermatitis?	04
6.	Write short notes (any two) on: a. Canine atopic dermatitis b. Alopecia c. Nutritional skin diseases	4×2

Chittagong veterinary and Animal Sciences University
Department of Medicine and Surgery, Faculty of Veterinary Medicine
MS in Medicine, January-June Semester-2021
Subject: Zoonotic Medicine (ZOM-601), Total marks: 40, Time-2 hours

*(Figure in the right margin indicates full marks. Answer any **FOUR** questions)*

Q1	a.	Define zoonoses. Briefly describe the role of veterinarians in zoonotic control.	5
	b.	Describe the Mode of transmission and important clinical signs of Zika and Ebola in human and animal?	5
Q2	a.	Which salmonella serovars have zoonotic potential? How they transmit? What they do both in human and animal?	5
	b.	Name the most common fungal zoonoses. What is its common name and causal agent? Briefly describe the diagnostic and treatment procedures of it.	5
Q3	a.	How Brucella spread? How will you control Brucellosis induced abortion storm in a dairy farm?	5
	b.	Write down the zoonotic significance of following diseases. i. Cryptosporidiosis ii. Toxoplasmosis iii. FMD and iv. leptospirosis	5
Q4	a	List the important protozoal and fungal zoonoses with their causal agents.	5
	b	What is MDR TB? Briefly discuss the biochemical and serological tests for the diagnosis of TB cattle.	5
Q5	b.	What sequential steps you would like to follow in controlling rabies in animals and humans?	5
	a.	Briefly describe the etiology, diagnosis and treatment procedures of Q fever in animal.	5

"GOOD LUCK"

Chittagong veterinary and Animal Sciences University
Department of Medicine and Surgery, Faculty of Veterinary Medicine
MS in Medicine, January-June Semester-2021
Subject: Food Animal medicine (FAM-601), Total marks: 40, Time-2 hours

*(Figure in the right margin indicates full marks. Answer any **FOUR** questions)*

Q1	a.	Define and classify bovine mastitis. How do you differentiate contagious from environmental mastitis?	5
	b	List the important protozoal diseases of farm animal. Mention the general prevention procedures of them.	5
Q2	a.	Briefly describe the causal agent, transmission procedures, and diagnosis and treatment protocols of anthrax in cattle.	5
	b.	Write down the prognosis and post infection complications of following diseases. i. FMD ii. Fascioliosis iii. Mastitis iv. Neval ill and v. Epimeral fever	5
Q3	a.	Write down the etiology, epidmiology, diagnosis and line of treatment of brucellosis in cattle.	5
	b.	Write down the important clinicopathological findings which most likely point the diagnosis of following diseases. i) Tetanus ii) paratuberculosis iii), iv) Anaplasmosis, v) Ascariasis	5
Q4	a.	List the vector borne diseases in ruminant. Briefly describe the clinical findings, diagnosis and treatment of babesiosis in cattle.	5
	b.	What is black disease in sheep? What is the role of liver fluke in black disease? Write a prescription of goat plague.	5
Q5	a.	What are the common causes of lameness in cattle? Enumerate the etiology, clinical signs, diagnosis and treatment of foot rot in cattle.	5
	b.	Name the vaccines with their schedules, doses, routes and duration of interval practiced in cattle of Bangladesh.	5

Good Luck

Chattogram Veterinary and Animal Sciences University
Faculty of Veterinary Medicine
Department of Medicine and Surgery
MS in Medicine
Semester: January-June 2021
Subject- Avian Medicine
Course code: AVM-601
Total marks – 40
Time – 2 (Two) hours

(Figures in the right margin indicate full marks. Answer any **FOUR** questions)

1. (a) Differentiate between Infectious bronchitis and Infectious laryngotracheitis. **04**

(b) Write down the vaccination schedule of commercial layer & broiler. **06**

2. (a) Write down the postmortem lesions, treatment and prevention of Duck plague. **06**

(b) Describe briefly: i. Derzsy's disease and ii. Bacillary white diarrhea. **04**

3. (a) Differentiate between Marek's disease and Lymphoid leukosis. **04**

(b) Write down the postmortem lesions of Infectious bursal disease, brooder pneumonia and fowl typhoid. **06**

4. (a) Write down the etiology, clinical signs and postmortem lesions of Avian Influenza in chickens. **07**

(b) Write short note on bumble foot disease. **03**

5. (a) Write down the clinical signs of EDS76, Anatipestifer infection and Newcastle disease. **06**

(b) Explain the role of concentrates, fish meal and coccidiosis in causing necrotic enteritis. **04**

6. Describe in details the vaccination of Newcastle disease and pox in chickens. **10**

Chittagong Veterinary and Animal Sciences University
Department of Medicine and Surgery
MS in Epidemiology January-June Semester Final Examination, 2021
Course Title and Code: *Principles of Epidemiology (PRE: 2+0)*
Total marks: 40; **Time**: 2 hours

[Answers all questions and right margin indicates full marks]

Scenario-1: The dairy sector is one of the emerging sectors in livestock, Bangladesh. However dairy herd faces various infectious and non-infectious diseases (e.g., metabolic diseases, nutritional deficiency diseases, reproductive disease) due to poor farm hygiene and feeding system. Therefore, the local DLS desires to estimate the burden of farm level metabolic disease and associated risk factors in dairying in Chattogram Metropolitan area.

Question 1:

Based on the above background information answer the following questions:

Q1.1: Identify and define the outcome variable **(Points 2.0)**

Q1.2: Enlist the exposure variables. Compare among risk factor, protective factor and determinant **(Points 4.0)**

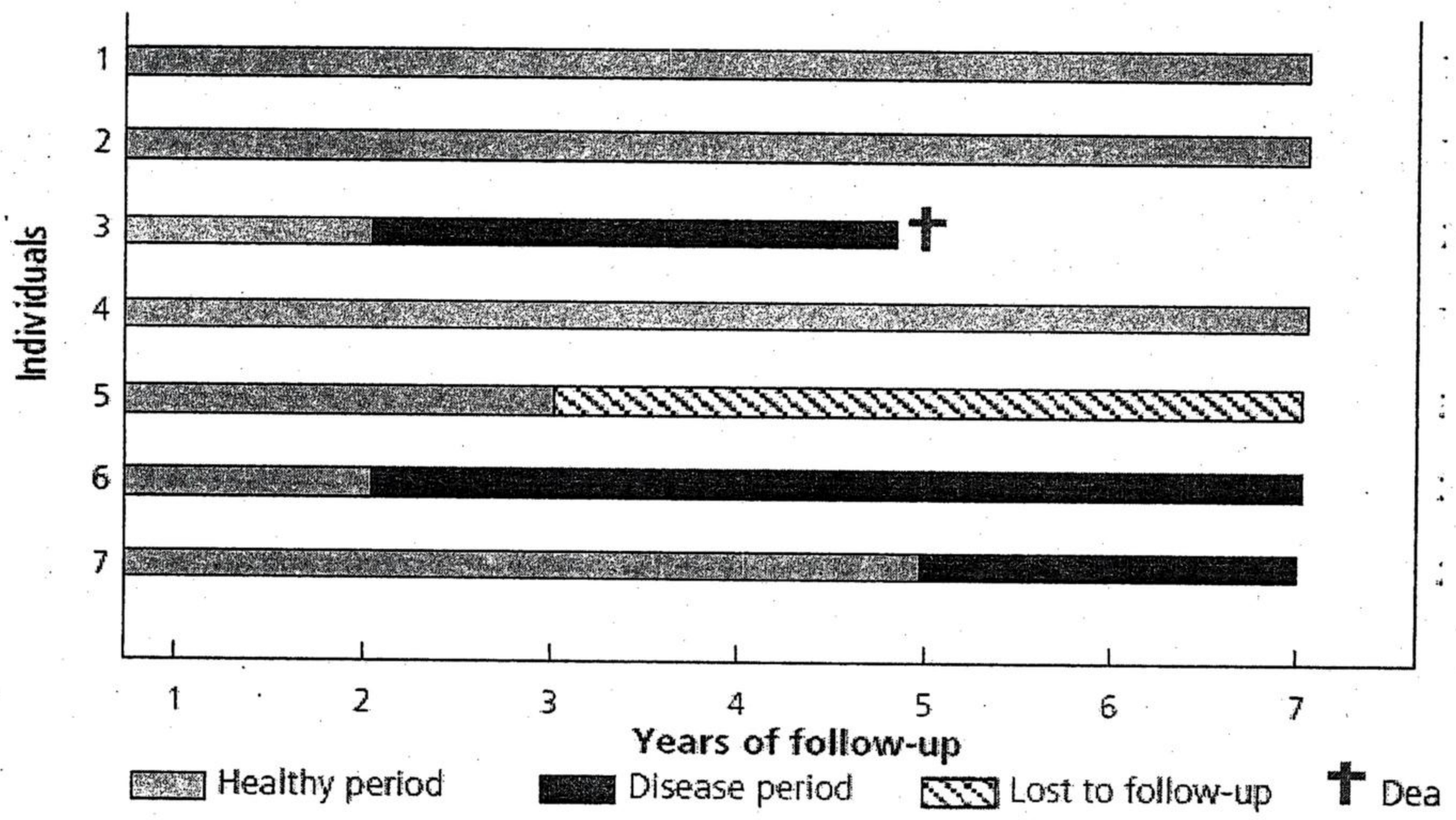
Q1.3: Write down the appropriate measures of disease frequency? What are the pre-conditions to be met to calculate your chosen measure of the disease frequency? Use example figures to calculate the measure along with its interpretation. **(Points 4.0)**

Q1.4: Construct an example 2 × 2 table, calculate and interpret the appropriate measure effect. And write down the difference between your chosen measure of effect and others. **(Points 4.0)**

Question 2:

Q2.1: A population of 500 cattle heads was followed for a period of 2 years. Initially 50 had the disease X. Additional 40 cases were recorded over the follow up period. Calculate and interpret appropriate measures of disease frequency at the start, during the follow-up period and over the whole period. **(Points 6.0)**

Q2.2" A seven-year cohort study was carried out to assess the status of tuberculosis in cattle of 24 farms (N=600 cattle) in Chittagong in 2018. Of the total 60% animals are adult. Animals were also newly added to these farms during the first year of the study. Some animals were also died due to number of reasons such as mastitis. Some example results of the study are given as follows. Describe the nature of the population. ***Write pre-requisites the appropriate measure of bovine tuberculosis in the population? Calculate and interpret the results.*** **(Points 7.0)**



Question 3:

Q3.1: In a totally susceptible population 1 case of Newcastle disease leads to 14 new cases. What percentage of population should be immune to make the infection stable? **(Points 3.0)**

Q3.2: You have determined potential risk factors associated with a disease under investigation by using an appropriate statistical model. Now, you like to causally interpret the results. What are the criteria you will follow to ascertain each of the potential factors as causally associated with the disease? Explain those criteria. (**Points 10.0**)