

Chittagong Veterinary and Animal Sciences University

MS in Microbiology Final Examination

July – Dec Semester 2015

Course title: Advance Systemic Virology

Course Code: ASV-602

Full Marks- 40, Time- 2 Hours

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

1. a) Name two viruses belonging to each group with their family, host, site of replication and symmetry. 2×4=8
i) Arthropod borne virus ii) Virus causing disease in dog iii) Vertically transmissible virus iv) Immunosuppressive virus.
b) Write down the diagnostic procedure of Fowlpox virus. 2
2. a) Name five important viruses under each of the family Picornaviridae, Herpesviridae and Picronaviridae. Differentiate between Chicken pox and Fowl pox. 5
b) Briefly describe etiology, epidemiology, diagnosis and prevention of infectious canine hepatitis. 5
3. a) Define genetic shift and drift. Describe the epidemiology and control of avian influenza in Bangladesh. 5
b) Write down the genomic properties, mode of transmission and diagnosis of FMD virus. 5
4. a) Enlist different pathotypes of NDV with method of their characterization. 4
b) Describe epidemiology, pathogenicity, diagnosis and control of PPR in goat. 4
c) Differentiate between Duck plaque and Duck viral hepatitis. 2
5. Write short note on any two - 5×2
I) BSE =10
II) Feline pan leucopenia
III) Canine distemper

Chittagong Veterinary and Animal Sciences University

MS in Microbiology Final Examination

July-December Semester, 2015

Course Title: Advanced Systemic Bacteriology

Course Code: ASB 602

Total Marks: 40 Time: 2 hours

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

1. a) What is Methicillin-resistant *Staphylococcus aureus* (MRSA)? Give an outline on the rapid identification of most clinically significant *Staphylococcus* species. 6
b) Compare the main characteristics of the toxins produced by *Clostridium tetani* and *Clostridium botulinum*. 4
2. a) Briefly describe the virulence factors of *Salmonella*. Give the isolation and identification procedure of motile salmonellae from faecal samples of poultry. 7
b) Point out the differentiation of *Actinobacillus lignieresii* and *Actinomyces bovis* infections in cattle. 3
3. a) Write down the principal features of the genera *Trueperella*, *Pasteurella*, *Avibacterium* and *Leptospira*. How is leptospirosis spread to humans? 7
b) List the test methods available for diagnosis of paratuberculosis. 3
4. a) Describe the laboratory procedures for isolation and identification of *Listeria monocytogenes*. What are the molecular targets for DNA probes used for the identification of *Listeria monocytogenes* by DNA hybridization? 6
b) Enumerate the anaerobes of veterinary importance and the diseases caused by non-spore-forming anaerobes. 4
5. a) What is quorum sensing? Why *Pseudomonas aeruginosa* is intrinsically resistant to multiple antibiotics? 4
b) Write down the virulence attributes of *Brucella* species which are important for intracellular replication. Enumerate the molecular assays and typing methods employed for identification and typing of *Brucella* isolates. 6

Chittagong Veterinary and Animal Sciences University
MS in Microbiology Final Examination
July-December Semester, 2015
Course title: Advanced Immunology and Serology
Course code: AIS-602
Total Marks: 40 Time: 2 hours

Figures in the right Margin indicate full marks. Answer any four questions

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|---|---|---|------------|
| 1 | a | Discuss the overview of immune response in vivo. | 5 |
| | b | Compare innate immunity from adaptive immunity. | 2.5 |
| | c | Mention different ligand molecules of different TLRs. | 2.5 |
| 2 | | Illustrate the phagocytic process. | 10 |
| 3 | | A Cattle is infected with FMDV. How will its immune system process the viral antigen and present to immune system? | 10 |
| 4 | a | Summarize the role of accessory molecules of CD4 cells with APC. | 5 |
| | b | What do you mean central and peripheral tolerance? How can you induce T cell anergy induced by a self-antigen in transgenic mice? | 5 |
| 5 | | What is hypersensitivity? On which basis hypersensitivity is classified? Explain the mechanism of type I and IV hypersensitivity. | 10 |

Chittagong Veterinary and Animal Sciences University

MS in Microbiology Final Examination

July-December Semester, 2015

Course Title: Avian Microbes

Course Code: AMB-602

Full Marks: 40, Time – 2 hours

Answer any 4 (FOUR) questions.

1. Enumerate the Streptococcal species and the diseases they produce in different avian species. What is *spa* typing? Write down the steps of diagnosing necrotic enteritis in chickens. 10

2. What are the subspecies and serogroups of *Pasteurella multocida*? What is the basis of serotyping of *Pasteurella multocida*? Give a brief list of probable factors that are correlated with the virulence of avian pathogenic *Escherichia coli* (APEC). Briefly describe the Congo red dye agar test for characterization of APEC. 10

3. (a) What are boot and drag swabs taken for screening of *Salmonella* from poultry farms? Describe the following antigenic formula of a strain of *Salmonella* Typhimurium: 1,4,5,12:i:- 7
(b) Briefly describe the strains of *Mycoplasma gallisepticum* that are commonly used as vaccines. 3

4. (a) How does *Chlamydoxylila psittaci* multiply? What are the serovars of *C. psittaci*? 5
(b) Describe the genome of avian influenza A virus. How clades of highly pathogenic avian influenza virus subtype H5N1 are defined? 5

5. How a wild very velogenic Newcastle disease virus can be differentiated from a lentogenic vaccine strain? What are the proteins encoded by the two genomic segments of infectious bursal disease virus? Write down the steps of isolation of infectious bronchitis virus in embryonated hen-eggs from a field sample. 10

Chittagong Veterinary and Animal Sciences University

MS in Microbiology

July – December 2015 Semester Final Examination

Course title: Vaccinology

Course Code: VCL- 602

Full Marks- 40, Time- 2 Hours

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

1. a) Briefly describe the procedure of Anthrax vaccine production from master seed in seed lot system. 7
b) Write down the methods and routes of administration of vaccines in poultry with example. 3
2. a) How the quality and safety of a vaccine can be ensured during the production process? 5
b) Briefly describe immune modulation. Classify immune modulation with example. 5
3. a) Explain the possible side-effects and risk of vaccination in animals 5
b) Briefly discuss the mechanism of vector vaccine production. Write down the advantages and disadvantages of this type of vaccine. 5
4. a) Classify adjuvant and describe mode of action of each type with example. 7
b) Briefly describe the vaccine combinations commonly used in animal. 3
5. Write short note on **any two**— 5×2=10
 - i) Vaccination failure
 - ii) Autogenous vaccine
 - v) Marker vaccine

Chittagong Veterinary and Animal Sciences University
MS in Microbiology Final Examination
July-December Semester, 2015
Molecular Microbiology
Course code: MMB-602
Total Marks: 40 Time: 2 hours

Figures in the right Margin indicate full marks. Answer any four questions

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| 1 | a | What are the different methods of gene sequencing? In your opinion which method is superior and why? Describe its process. | 5 |
| | b | Discuss the transcription and translation process in a eukaryotic cell. How does it differ in prokaryotic cell? | 5 |
| | | | |
| 2 | a | Define PCR. Discuss the PCR process. | 5 |
| | b | What the different modification of PCR? Explain them | 5 |
| | | | |
| 3 | a | What is genomic library? What will the screening procedure to find out a desired gene from a genomic library | 5 |
| | b | How can you elucidate the function of a gene in a mouse? | 5 |
| | | | |
| 4 | a | Explain how insertional inactivation process helps to find out the right clone. | 5 |
| | b | What are VNTR and STR? Mention its role in forensic medicine. | 5 |
| | | | |
| 5 | a | Explain the extraction procedure of nucleic acids | 10 |