REV-01
BMB/02/05

2022/07

B.Sc. MICROBIOLOGY
SECOND SEMESTER
VIROLOGY
BMB – 202 [REPEAT]

(Use Separate Answer Scripts for Objective & Descriptive)

Duration: 3 hrs. Full Marks: 70

[PART-A: Objective]

Time: 20 min. Marks: 20

Choose the correct answer from the following: ***1X20=20***

1. A virus obtains its envelope during which of the following phases?
   a. Attachment b. Penetration
   c. Assembly d. Release

2. The functions of capsid include
   a. protect genetic material from nuclease attack b. attachment and injection of viral genome into the host
   c. determines the antigenic specificity of virus d. All of the above

3. Which of the following leads to the destruction of the host cells?
   a. lysogenic cycle b. prophage
   c. lytic cycle d. temperate phage

4. In naming viruses, the family name ends with _____ and genus name ends with _____.
   a. -virus; -viridae -virus; virion
   c. -virion; virus -viridae; -virus

5. What is the capsid of the bacteriophage made up of?
   a. DNA b. RNA
   c. Protein d. Organic acids

6. Which of the followings cannot be used to culture viruses?
   a. Blood agar b. animal host
   c. embryo d. tissue culture

7. Which of the following enzyme found in bacteriophage
   a. Dehydrogenase b. Lysozyme
   c. Protease d. Nitrogenase

8. Which virus has segmented genome?
   a. Herpes virus b. Retrovirus
   c. Corona virus d. Influenza virus

9. Which drug used against HIV infection?
   a. Acyclovir b. Ribavirin
   c. Lamivudine d. Rifamycin

10. Which of the following is not an RNA virus?
    a. Retrovirus
    b. Adenovirus
    c. Enterovirus
    d. Both a and b

11. A chemical component found in all viruses is...
    a. DNA
    b. Lipid
    c. RNA
    d. Protein

12. Conversion DNA to mRNA is called....
    a. Translation
    b. Translocation
    c. Transcription
    d. transduction

13. Which virus has partially double stranded genome
    a. Hepatitis B virus
    b. TMV
    c. Cowpox virus
    d. Dengue virus

14. What is the mode of function of Lopinavir
    a. Protease inhibitors
    b. Neuraminidase inhibitors
    c. RNA polymerase inhibitors
    d. Both a and c

15. A gene that may cause initiation of cancer growth is known as...
    a. Carcinogen
    b. Mutated gene
    c. Oncogene
    d. Hepatitis causing gene

16. An icosahedral capsid consists of_____.
    a. Triangular capsomeres
    b. Pentagonal capsomeres
    c. Hexagonal capsomeres
    d. Both b and c

17. Which of the following oncogenic viruses was first detected?
    a. Epstein-Barr virus
    b. Rous sarcoma virus
    c. Herpes simplex virus type 2
    d Human T cell leukaemia virus

18. A positive-strand RNA virus:
    a. must first be converted to a mRNA before it can be translated.
    b. can be used directly to translate viral proteins.
    c. Will be degraded by host enzymes.
    d. is not recognized by host ribosomes

19. In gene therapy, functional gene is inserted into target cell should:
    a. Suppress non-expressible gene
    b. Replace non-functional gene
    c. A and B
    d. Make desired amount of protein

20. All viruses are obligate parasites of cells and therefore all viruses cause disease.
    a. True
    b. False

-- --- --

PART-B : Descriptive

Time : 2 hrs. 40 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. What is virus? Write the characteristics of viruses and briefly explain the structure of Viruses with neat diagram. **1+3+6 =10**

2. What is prion? Briefly explain the cultivation and purification of viruses. **1+6+3 =10**

3. Write short notes on **5+5=10**
   a. one step multiplication curve
   b. concept of early proteins & late proteins

4. Write short note on: *(any two)* **5+5=10**
   a. Overlapping genes of X174.
   b. Alternate splicing (HIV)
   c. Terminal cohesive end (lambda phage)

5. Briefly explain the mode of viral transmission with example. **10**

6. What are antiviral compounds? Write the mode of action of antiviral compounds. **2+8=10**

7. a. What is Interferon? Write the mode action of interferon with neat diagram. **1+4+5 =10**
   b. What is immunization? Write the general principle of viral vaccination.

8. a. What are viral vectors? Give 3 examples of viral vectors. **2+3+2+3 =10**
   b. What is phage display? Write the application, advantage, disadvantages of phage display.

= = *** = =