Unit 28 · Microbial Diseases

WORKSHEET

Full marks 32

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 32

1 Key words [4]

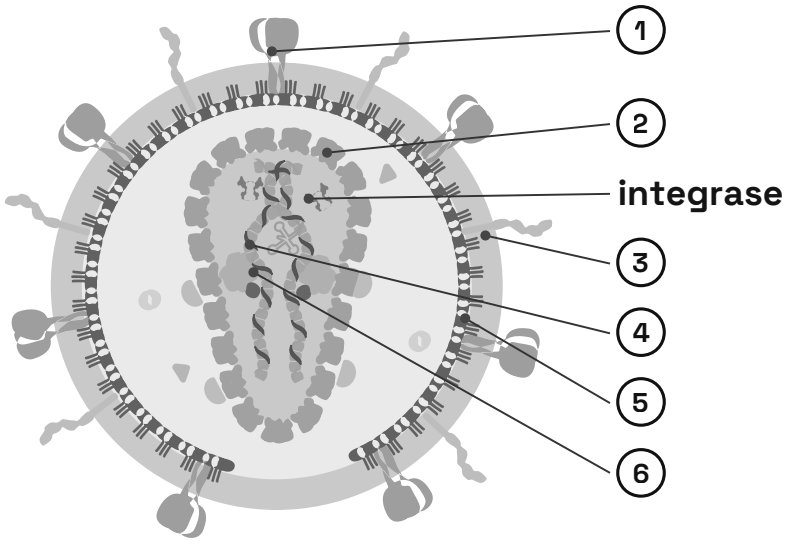
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

acid-fast	**active**	**carrier**	**emerging**	**endemic**	**epidemic**	**lysozyme**	**opportunistic**
pandemic	**zoonotic**						

An epidemic that spreads across several continents, as COVID-19 did in 2020, is a _____. Diseases caused by newly identified microbes, such as COVID-19, MERS and SARS, are called _____ diseases. A disease that is always present in a region at a steady level, as typhoid is in Nepal, is _____. A disease that people catch from animals, such as bird flu, is _____. A person who carries and spreads a pathogen without being ill is a _____. In AIDS, infections that a healthy immune system keeps away, such as tuberculosis and candidiasis, take hold; they are called _____ infections. *Mycobacterium tuberculosis* holds a red dye even when washed with acid, so it is called _____. An enzyme in tears, saliva and mucus that splits bacterial cell walls is _____.

2 Label the diagram [3]

The diagram shows a mature HIV particle cut open. Write the names of the parts 1 to 6. Each carries 0.5 mark.



1. _____ **2.** _____

3. _____ **4.** _____

5. _____ **6.** _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. Which virus is in RG-4? [1]

a. Ebola virus
b. influenza virus
c. SARS virus
d. herpes virus

ii. Why does a vaccine against hepatitis B also protect against hepatitis D? [1]

a. the two viruses have the same RNA
b. the vaccine contains both viruses
c. HDV can only make its coat with HBV's surface protein, so without HBV it can't infect
d. hepatitis D is caused by bacteria the vaccine kills

iii. Cholera toxin causes diarrhea mainly by: [1]

a. destroying the lining of the small intestine
b. making gut-lining cells release chloride ions, which water follows into the gut
c. blocking the absorption of glucose
d. invading the blood and causing fever

iv. A patient has had a fever for five days. Which test is most likely to find typhoid bacteria? [1]

a. blood culture
b. Widal test
c. stool culture
d. urine culture

v. A farmer in Chitwan is bitten by a cobra and is given anti-snake venom. What kind of immunity does it give? [1]

a. natural active
b. artificial active
c. natural passive
d. artificial passive

4 Short answers [9]

Write short answers to the following questions.

a. What is the difference between a hazard and a risk? Give an example of each from a laboratory. [2]

b. Why is tuberculosis always treated with several drugs at once, and why is each dose watched under DOTS? [2]

c. A woman finishes a week of a strong antibiotic and then gets white patches on her tongue and inner cheeks, which leave red, sore spots when wiped. Name the disease and explain how the antibiotic led to it. **[2]**

d. Compare hepatitis A and hepatitis B in their causative virus, mode of transmission and whether they become chronic. **[3]**

5 Long answers **[8]**

Write long answers to the following questions.

a. Describe the four stages of HIV infection in a person who is not treated. **[4]**

b. Write any four differences between humoral and cell-mediated immunity. **[4]**

6 Think [3]

At first each case of COVID-19 passed the infection to about 2.5 others (its R_0), while a case of measles passes it to 12 to 18. For herd immunity, a share of $1 - 1/R_0$ of the people must be immune. Work out this share for both, and explain why measles comes back as soon as vaccination slips.

7 Activity: Make oral rehydration solution (not marked)

For an emergency when packets of Jeevan Jal aren't at hand, make ORS the WHO's way: in **1 liter** of clean (boiled and cooled) water, dissolve **6 level teaspoons of sugar** and **half a level teaspoon of salt**. Measure carefully.

What you checked	What you found
how the mixture looked after stirring	
its taste, compared with tears	
why the packet is better than home-made ORS	

Why does ORS save the life of a cholera patient even while the toxin is still acting?