

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. SIXTH SEMESTER EXAMINATION, JUNE 2022

THIRD YEAR [BATCH 2019-22]

MICROBIOLOGY (HONOURS)

Paper : XIV [CC14]

Date : 17/06/2022

Time : 11 am – 1 pm

Full Marks : 50

1. Answer **any ten** of the following questions: [10×2]

- Write down two functions of normal flora.
- Discuss the role of collagenase in disease development.
- What are the target molecules of *Clostridium difficile* toxin?
- Write down the mode of action of polymyxin B.
- How does primary bacteremia occur in typhoid?
- How does physiology influence diversity of normal flora?
- What is the role of coagulase in disease development?
- Write down the symptoms of cholera.
- Why does rabies virus cause a fear of water?
- Name any one disease caused by i) Single strand RNA virus ii) Double strand DNA virus.
- What is swine flu? Why it is not possible to develop a single flu vaccine?
- Name the different types of malaria with their causative agent.
- Write down the mode of transmission of Herpes virus.
- What role does PCR play in medical microbiology?
- Compare in between three types of ELISA with respect to their use in diagnostic laboratory.

Answer **any three** of the following questions: [3×10]

- 'A properly collected specimen is the single most important step in the diagnosis of an Infection'—Explain.
 - IF staining is more specific than other staining techniques in the purpose of diagnosis - Why?
 - Name two standard types of medium used in diagnostic laboratory for routine culturing of specimens. Mention its role also.
 - Define CFT. What is the basic principles of CFT technique? [3+2+2(1+2)]
- Compare the following:
 - Hepatitis A and Hepatitis B virus.
 - Antigenic shift and antigenic drift
 - Neuraminidase and Hemagglutinin.
 - Write the name of the causative agent, symptoms and treatment for the following diseases:
 - Kala azar
 - Japanese Encephalitis.
 - Ebola
 - Name one zoonotic disease and why is it called so? [(3×1.5)+(3×1.5)+1]

4. a) What is the role of clavulanic acid in combinational therapy?
b) Write down three differences between endo- and exotoxin.
c) How does endotoxin work?
d) Why does a combination of edema factor and lethal factor can't cause anthrax? (2+3+3+2)
5. a) Write down the role of G protein in cholera disease.
b) How does tetanospasmin cause spasmodic contractions of muscle?
c) What do you mean by generation of antibiotics?
d) How does *Salmonella typhi* pathogen cause membrane ruffling? (3+3+2+2)
6. a) Why are antiviral drugs very limited in number?
b) Write down the mode of action of chloramphenicol.
c) Why are metronidazole drugs ineffective against aerobic bacteria?
d) How does oseltamivir work? (2+2+3+3)

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