Time : 2 ½ Hours **Total Marks : 60**

Note: 1) All questions are compulsory.

2) Draw neat, labelled diagram wherever necessary.

3) Figures to the right indicate full marks.

4) All questions carry equal marks.

Q1 Answer the following (Any Two): **12**

a) Schematically represent the detailed structure of COVID-19.

b) Explain in detail clinical manifestation of Ebola virus.

c) Give detail accounts of transmission route and treatment for SARS.

d) Give the overview of Swine flu virus.

Q2 Attempt the following (Any two): **12**

a) Define Epidemiology. State the importance of epidemiology.

b) What is a case control study? Explain the advantages of case control study.

c) What is Prevalence? How does the prevalence of a disease increase?

d) What is Incidence proportion or risk? Explain giving example method for calculating Incidence proportion or risk.

Q3 Give an account of the following (Any two): **12**

a) Pathogenesis and transmission of HIV.

b) Physiological conditions caused by *Helicobacter pylori*.

c) Life cycle of *Plasmodium falciparum* in human and mosquito.

d) Pathogenesis of Legionella.

Q4 Answer the following (Any two): **12**

a) Define biofilm and describe the structure of biofilm.

b) Explain quorum sensing using a neatly labelled diagram.

c) List the applications of biofilms.

d) Describe in brief any three methods used for controlling biofilms.

Q5 Write short notes on (Any Three): 12

a) Treatment for Nipah virus

b) Difference between Descriptive and Analytical Epidemiology

c) *Entamoeba histolytica*

d) Kirby-Bauer disc diffusion method

e) Economic loss due to viruses

f) Cross sectional studies