

5. (a) Assess the effectiveness of quarantine protocols and infection control strategies in reducing disease transmission during pandemics. 6
- (b) Define different types of vaccines and evaluate their advantages and limitations in pandemic control. 6
- (c) Discuss the key challenges in vaccine development and distribution during pandemics. 6
6. (a) Discuss the principles and advantages of rapid diagnostic tests such as lateral flow assays method. 6
- (b) Evaluate the role of public awareness programs and standard operating procedures (SOPs) in pandemic preparedness and response. 6
- (c) Give a brief historical pandemic overview of plague, small pox and influenza. 6

[This question paper contains 4 printed pages]

Your Roll No. :

Sl. No. of Q. Paper : **6464 I**

Unique Paper Code : 3184002004

Name of the Paper : Pandemics : Challenges and Preparedness Generic Elective (GE)

Name of the Course : **B.Sc. (H) Biomedical Science (NEP-UGCF-2022)**

Semester : II

Time : 3 Hours **Maximum Marks : 90**

Instructions for Candidates :

- Write your Roll No. on the top immediately on receipt of this question paper.
- Attempt any **five** questions in **all**.
- Question **No.1** is compulsory.
- Give illustrations and examples wherever required
- Subparts of the questions should be attempted together.

1. (a) Define : (any **three**) : $3 \times 3 = 9$
- (i) Outbreak
 - (ii) Endemic
 - (iii) Zoonotic disease
 - (iv) Standard Operating Procedures
- (b) Differentiate between : (any **three**) : $3 \times 3 = 9$
- (i) Antigenic Shift and Antigenic Drift
 - (ii) Avian Flu and Swine Flu
 - (iii) ELISA and LFIA
 - (iv) Covaxin and Covishield
2. (a) Comment/Short Notes on: $3 \times 3 = 9$
- (i) Alternative Therapies during Pandemic
 - (ii) Drugs used to cure Covid 19
 - (iii) Rapid Diagnostic Kits
- (b) State **True/False** and give justification : $3 \times 2 = 6$
- (i) Avian flu affects the rodents.
 - (ii) Melt blown process is used to manufacture the N95 Mask.
- (c) What are the factors that determine whether a disease becomes an epidemic or Pandemic? 3

3. (a) Critically discuss the different types of Enzyme-Linked Immunosorbent Assay (ELISA) and explain the underlying principle of the technique, highlighting its applications and limitations in disease diagnosis. 10
- (b) Evaluate the risks and public health implications associated with self-medication during disease outbreaks, with particular reference to antimicrobial resistance, misdiagnosis, and delayed clinical intervention. 8
4. (a) Analyze the structure and life cycle of viral pathogens and explain how these features contribute to host invasion and immune evasion? 6
- (b) Discuss the role of genetic mutations in the emergence of new infectious strains and evaluate their impact on disease transmission. 6
- (c) Evaluate the scientific basis and limitations of alternative therapies, immunity boosters, and the placebo effect during pandemic conditions. 6