

U.G. 4th Semester Examination - 2021**Molecular Biology****[PROGRAMME]****Skill Enhancement Course (SEC)****Course Code : MBG-405-T-SEC-2**

Full Marks : 20

Time : 1 Hour

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **five** questions: $1 \times 5 = 5$
- a) What is agglutination?
 - b) Name two common antibiotics.
 - c) Name the causal organism of swine flu.
 - d) What are fluorophores?
 - e) How will you detect *Vibrio cholerae* infection?
 - f) Which staining method is used for identification of *Mycobacterium tuberculosis*.
 - g) Name two anti-coagulant used during collection of blood samples.
 - h) Draw the different morphologies of bacterial colonies.

2. Answer any **one** of the following: $5 \times 1 = 5$
- a) How does the antibiotic sensitivity of pathogenic bacteria changes over the course of time? What is the role of 'agglutination reaction' in detection of pathogenic infection?
 $2+3$
 - b) Describe the effects of malarial parasite on different body systems during its life cycle within human host. How can malaria be diagnosed by Giemsa staining of blood sample?
 $3+2$
 - c) What type of colonies will be formed by *Mycobacterium tuberculosis* in Lowenstein Jensen medium and *E.coli* in MacConkey agar medium? What are the roles of glycerol and egg albumin in Lowenstein-Jensen medium? What is Candidiasis?
 $2+2+1$
3. Answer any **one** of the following: $10 \times 1 = 10$
- a) How can ELISA be used for diagnosis of HIV infection in a patient? Explain how PCR can be used to rapidly diagnose dengue?
 $5+5$
 - b) What information can be obtained by gram staining of an infected urine samples? Describe the procedure of collection of cerebrospinal

fluid. Highlight the different punctures done during collection of cerebrospinal fluid.

2+4+4

- c) How is immune-fluorescence used in serological methods for detection of diseases? Which antigen is/are targeted during rapid detection of dengue using rapid detection kit? What precautions are needed to be followed during transport and storage of stool specimen? Mention the procedure followed during the transport and storage of clinical samples.

2+2+3+3
