

B.Sc.-M.Sc. INTEGRATED PROGRAMME (TOXICOLOGY)

SEMESTER III, ONLINE EXAMINATION 2020

PAPER CODE – BTX-GE-01

PAPER TITLE: VIRTUAL LAB OF TOXICOLOGY

Time : Three Hours

Maximum Marks : 37

Attempt all questions. All parts of a question must be attempted in continuation. Start answer of a fresh question on a new page. Cite examples and draw labeled diagrams wherever necessary

Q1. Briefly answer the following

[1 x 07 = 07]

- A. Many biochemical reactions including those catalyzed by enzymes require pH control which is provided by
- B. The buffering power is greatest when $\text{pH}=\text{pK}_a$, i.e. when the acid and the salt are at the same concentration. (True or false)
- C. $\text{pH} = \text{pK}_a + \log \frac{[\text{Salt}]}{[\text{Acid}]}$
- D. Define isoelectric point (PI)
- E. What is the common stationary phase in TLC.
- F. ACSF stands for
- G. Define pharmacokinetics

Q2. Answer any three in details

[5 x 3 = 15]

- A. Explain how a buffer solution manages to stabilize the pH against the addition of small acid and base.
- B. How would you prepare 500 ml of 60 mM sodium acetate buffer of pH 3.8 by titration methods?
 pK_a of Acetic acid = 4.75
 MW of CH_3COOH = 60.052 g/mol; MW of CH_3COONa = 82.0343 g/mol
- C. Explain Method of buffer preparation by Henderson-Hasselbalch equation
- D. Describe the separation of amino acid using thin layer chromatography (TLC)
- E. Titration curve of amino acid (glycine).

3. Attempt any three of the following:

[5 x 3 = 15]

- A. Basics of cell culture
- B. Isolation of ER
- C. Prediction ADME properties of a drug
- D. Isolation of Mitochondria
- E. *In silico* toxicity molecule for a xenobiotic

It should be noted that 40 minutes extra time will be provided to scan your answer sheets, build a PDF and uploaded it.