

**B.Sc.-M.Sc. INTEGRATED PROGRAMME (TOXICOLOGY)**  
**SEMESTER III, ONLINE EXAMINATION 2020**  
**PAPER CODE - BTX-CC11**

**PAPER TITLE: METHODS OF TOXICOLOGY**

*Time : Three Hours*

*Maximum Marks : 75*

**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**

**Question No. 1:**

**Attempt all questions very briefly:**

**[10 x 1.5= 15]**

- i. Define Relative Centrifugal Force (RCF)
- ii. Centrifugal field depends on the radial distance of the particle from the rotation axis and the square of the angular velocity. (True or False)
- iii. What is Sedimentation coefficient?
- iv. What is Beer-Lambert Law?
- v. In fluorescence spectroscopy, emitted light is detected at 90 degree of excited light (True or False)
- vi. Define stationary and mobile phase in Chromatography
- vii. Write full form of TLC, GFC and LC
- viii. First pass effect
- ix. Example of an *in vitro* model for studying toxicity
- x. Who is credited for developing Comet Assay?

**Question No. 2:**

**Attempt any THREE of the following:**

**[03 x 5= 15]**

- A.** Basic Principle of Sedimentation
- B.** Types of Centrifuge
- C.** Application of centrifugation techniques
- D.** Ultracentrifugation
- E.** Differential Centrifugation

**Question No. 3:**

**Attempt any THREE of the following:**

**[03 x 5= 15]**

- A. Define spectroscopy and explain Jablonski diagram.
- B. Write short note on Fluorescence spectroscopy
- C. The concentration of yeast t-RNA in an aqueous solution is 10  $\mu\text{g/mL}$ . The absorbance is found to be 0.209 when this solution is placed in a 1.00 cm cuvette and 258 nm radiation is passed through it. [a] Calculate the extinction coefficient of yeast t-RNA. [b] What will be the absorbance if the solution is diluted to 5  $\mu\text{g/mL}$ ? [c] What will be the absorbance if the path length of the original solution is increased to 5.00 cm
- D. What do you understand by following terms (a) Stokes shift (b) Quantum Yield (c) Spectrum?
- E. Explain red and blue shifts of absorbance or fluorescence spectra by drawing suitable diagram.

**Question No. 4:**

**Attempt any THREE of the following:**

**[03 x 5= 15]**

- A. Classification of chromatography
- B. Thin layer chromatography
- C. Gel Filtration Chromatography (GFC)
- D. Adsorption Chromatography
- E. How is the  $R_f$  value for a spot on a TLC plate calculated? What can the  $R_f$  value be used for?

**Question No. 5:**

**Attempt any THREE of the following:**

**[03 x 5= 15]**

- A. COMET assay
- B. Ames Test
- C. Routes of Administration
- D. Cell culture studies
- E. *In vivo* models

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