**SET A**

# M. PHARM.
# FIRST SEMESTER
# MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES
# MPL101T

[USE OMR FOR OBJECTIVE PART]

**Duration : 3 hrs.** **Full Marks : 75**

## PART-A: Objective

**Time : 30 min.** **Marks : 20**

***Choose the correct answer from the following:*** ***1×20=20***

1. UV cutoff wavelength of ethanol is
   a. 198 nm b. 191 nm
   c. 204 nm d. 205 nm
2. Which type of column is commonly used for separation of diastereomers.
   a. Phenyl b. chiral
   c. C-18 d. amino
3. Length of column for gas chromatography ranges from.
   a. 80-100 cm b. 5-25 cm
   c. 1-10 cm d. All of the above
4. Ninhydrin reagent is commonly used for detection of
   a. Alkaloids b. carbohydrates
   c. Amino acid d. terpenoids
5. In flame photometry intensity is used for_____ purpose.
   a. Quantitative b. Both a and c
   c. Qualitative d. None of these
6. Affinity chromatography is a----
   a. Solid- gas chromatography b. Solid- liquid chromatography
   c. Liquid- gas chromatography d. All of these.
7. If the particle size of stationary phase is decreases it leads to separation
   a. Decreases b. Increases
   c. No effect d. Both b and c
8. In turbidimetry concentration decreases leads to
   a. $I_t$ decreases b. $I_t$ increases
   c. $I_t$ -similar d. All of above
9. Which of the following is not a factor influencing fluorescence intensity.
   a. Source of light b. Rigidity of structure
   c. Conjugation d. Temperature
10. Inter-system crossing occurs due to...
    a. Low temperature b. Absence of oxygen
    c. both d. None of these

11. 1mg is equal to-
    a. 100 µg
    b. 1000 µg
    c. 10000 µg
    d. 500 µg

12. Which of the following is Octayl Silane (OS) column.
    a. C-10
    b. C-8
    c. C-4
    d. C-18

13. In reverse phase chromatography the mobile phase is
    a. Polar
    b. Non-polar
    c. Both
    d. None of these

14. Most commonly used stationary phase in TLC is _____
    a. Silica
    b. Silica gel-G
    c. Alumina
    d. Silica gel-H

15. Principle involved in paper chromatography is
    a. Adsorption
    b. partition
    c. Both a and b
    d. None of these.

16. Device that converts radiation energy to electrical signals are called__.
    a. Recorder
    b. Amplifier
    c. Detector
    d. Monochromator.

17. Diffraction grating consist of a_____.
    a. Glass
    b. Quartz
    c. Alkyl halide
    d. All of the above.

18. In which type of vibration bond length is altered.
    a. Asymmetrical vibration
    b. Wagging vibration
    c. Twisting vibration
    d. Rocking vibration

19. Which of the following is not a GC detector.
    a. Katharometer
    b. Bolometer
    c. Electron capture detector
    d. Flame ionization detector.

20. Which of the following is mid-IR range?
    a. 400-10 $cm^{-1}$
    b. 4000-400 $cm^{-1}$
    c. 12000-4000 $cm^{-1}$
    d. None of these.

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## PART-B: Descriptive

Time : 2 hrs. 30 min. Marks : 35

*[ Answer any seven (7) questions ]*

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| 1. | Write a note on ELISA. | 5 |
| 2. | Write a note on Radio Immuno Assay. | 5 |
| 3. | Write a note on gel electrophoresis. | 5 |
| 4. | Write a note on principle and application of flame photometry. | 2.5+2.5 =5 |
| 5. | Discuss in brief the methodology of thin layer chromatography. | 5 |
| 6. | Write a note on principle and types of vibration in IR spectroscopy. | 5 |
| 7. | Define- a. Electrophoresis b. wavelength c. Chromophore d. Quenching e. Hypochromic effect. | 1+1+1+ 1+1=5 |
| 8. | Write a note on different types of ionization techniques used in mass spectroscopy. | 5 |
| 9. | Explain the principle and factors affecting fluorescence intensity. | 5 |

## PART-C : Long type questions

*[ Answer any two (2) questions ]*

1. Define and derive Beer and Lambert's law. **3+7=10**

2. Define Chemical Shift. Explain the factors influencing chemical shift. **2+8=10**

3. Discuss in brief the principle, instrumentation of gas chromatography. **5+5=10**

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