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SEAT No. _____

No. of Printed Pages : 2

SC

SARDAR PATEL UNIVERSITY
M.Sc (I Semester) Examinations (NC)
Friday, 22nd March, 2019
10.00 am to 1.00 pm
PS01CBIC22 – Bioinstrumentation

Total marks: 70

1. Choose the correct answers. (08)
- i) Which of the following method separates biomolecules based on size?
a) Gel permeation chromatography c) Paper chromatography
b) Gas chromatography d) all the above
- ii) Which of the following techniques is the most suitable for detecting radioisotopes?
a) Infrared spectroscopy c) NMR spectroscopy
b) Scintillation counting d) AAS
- iii) The wavelength of an absorption is 495 nm. In what part of the electromagnetic spectrum does this lie?
a) Ultraviolet-visible c) Microwave
b) infrared d) radiowave
- iv) For X-ray crystallographic studies the sample should be in the form of
a) Liquid c) Gas
b) Semisolid d) Crystal
- v) You want to determine the location of a specific substance based on birefringence. Which of the following is the best technique for this purpose?
a) electron microscopy c) bright-field microscopy
b) phase contrast microscopy d) polarization microscopy
- vi) Which of the following techniques can help to separate biomolecules based on density?
a) Centrifugation c) Spectroscopy
b) Scintillation counting d) microscopy
- vii) The separation of charged molecule based on pH gradient is known as
a) Isoelectro focusing c) native gel electrophoresis
b) Dot plot technique d) None of the above
- viii) In normal phase chromatography _____ are used
a. Polar stationary phase and non-polar mobile phase
b. Non-polar stationary phase and polar mobile phase
c. Polar stationary phase and polar mobile phase
d. Non-polar stationary phase and non-polar mobile phase

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C.P.T.O

2. Attempt any any seven:

(7 x 2 = 14)

- a. Define: depth of focus
- b. Define: hydrodynamic focusing
- c. SDS-PAGE
- d. Write a brief note on columns used in Gas chromatography.
- e. Why quartz cuvette is used in UV sepectroscopy?
- f. Define: molar absorptivity
- g. What is a photodiode?
- h. Define: fluors
- i. What are parent ions and fragment ions?

3. a) Briefly explain the functioning of SEM. (06)
b) Explain the instrumentation of Fluorescence microscope (06)

OR

- b) Explain the types of oculars. (06)

4. a) Explain the detectors used in HPLC. (06)
b) Describe the process of differential centrifugation. (06)

OR

- b) Discuss the principle and applications of GC. (06)

5. a) Explain the working of photomultiplier tube in detail (06)
b) Explain the instrumentation and application of IR spectroscopy. (60)

OR

- b) Outline the principle and uses of solid scintillation counting. (06)

6. a) Explain quadrupole analyzer in mass spectroscopy. (06)
b) Write a brief note on autoradiography (06)

OR

- b) Explain NMR spectroscopic technique in brief. (06)

—X—
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