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SEAT No. _____

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY
M.Sc (I Semester) Examinations
Friday, 22nd March, 2019
10.00 am to 1.00 pm
PS01CZOO22 – Bioinstrumentation

Total marks: 70

1. Choose the correct answers.

(08)

- i) Name the instrument(s) used to measure the absorbance.
 - a) Spectrophotometer
 - b) Colorimeter
 - c) AAS
 - d) all the above
- ii) Which of the following techniques is the most suitable for detecting elements
 - a) Infrared spectroscopy
 - b) Scintillation counting
 - c) NMR spectroscopy
 - d) AAS
- iii) The wavelength of an absorption is 495 nm. In what part of the electromagnetic spectrum does this lie?
 - a) Ultraviolet-visible
 - b) infrared
 - c) Microwave
 - d) radiowave
- iv) Separation in isopycnic centrifugation is based on:
 - a) Density
 - b) Size
 - c) Buoyant density
 - d) Shape
- v) You want to determine the location of a specific protein in a cell using a colored stain. Which of the following is the best technique for this purpose?
 - a) electron microscopy
 - b) phase contrast microscopy
 - c) bright-field microscopy
 - d) dark-field microscopy
- vi) Which of the following gases can be used as carrier gas
 - a) Nitrogen
 - b) Helium
 - c) Argon
 - d) All the above
- vii) The separation of charged molecule based on pH gradient is known as
 - a) Isoelectro focusing
 - b) Dot plot technique
 - c) native gel electrophoresis
 - d) None of the above
- viii) In normal phase chromatography
 - a. Polar stationary phase and non-polar mobile phase _____ are used
 - 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.01

2. Attempt any any seven:

(7 x 2 = 14)

- a. Define: focus
 - b. Define: hydrodynamic focusing
 - c. Define: 2-D gel electrophoresis
 - d. Write a brief note on injection systems 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 STM. (06)
b) Explain the instrumentation of confocal microscope (06)
OR
b) Explain the types of oculars. (06)
4. a) Explain the detectors used in GLC. (06)
b) Describe the process of differential centrifugation. (06)
OR
b) Discuss the principle and applications of HPLC. (06)
5. a) Explain the working of photodiode array in detail (06)
b) Explain the instrumentation and application of IR spectroscopy. (60)
OR
b) Outline the principle and uses of scintillation counter? (06)
6. a) Explain Time-of- Flight analyzer in mass spectroscopy. (06)
b) Write a brief note on liquid scintillation counting (06)
OR
b) Explain X-ray diffraction technique in brief. (06)

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