

[36]

SEAT No. _____

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SARDAR PATEL UNIVERSITY
M.Sc. (EST) (Second Semester) Examination
Wednesday, 20th March, 2019.
10.00 a.m. to 1:00 p.m.

PS02CEST22: Meteorological and Environmental Instruments

Max. Marks: 70

Q.1. Multiple Choice Questions (Choose Correct Answer)

[08]

- 1) In IR-Spectroscopy, the deformation of molecules originate between.....
a) 4000-1500 cm^{-1} b) 1400-700 cm^{-1} c) 1500-400 cm^{-1} d) 4000-1800 cm^{-1}
- 2) If atmospheric pressure is higher, the siphon cell will be
a) Expanded b) Contract c) Magnify d) None
- 3) Photo voltaic cell can be used as a -----in UV spectrometer
a) Sources b) Detector c) Monochromator d) Power supply
- 4) Expanding Beer's law, the relation between absorbance and transmittance of energy is.....
a) Directly proportional b) Inversely proportional c) linear d) constant
- 5) Which instrumentation is no need of an external energy source:
a) Fluorimetry b) Spectrophotometer c) Flame photometry d) All
- 6) All the following are components of compound microscope except
a) Diaphragm b) Condenser c) Electron gun d) Binocular eye piece
- 7) Nephelometry estimates the concentration of a test sample based on the measurement of....
a) Light absorbance b) Light transmittance c) Light emission d) Light scatter
- 8) Thin layer chromatography is
a) Partition chromatography b) Electrical mobility of ionic species c) Adsorption chromatography d) All

Q.2. Write a Short Note on followings (Any Seven).

[14]

1. Brief note on Environmental Monitoring
2. Burners used in Flame Photometer
3. Define: Span, Linearity
4. Functions of Eye-piece and objective lens
5. Working of Hollow cathode Lamp
6. ICPAES-Source
7. Photomultiplier detector
8. Soil lysimeter
9. Uses of Chromatography

Q.3. A. Explain different effects of wind on rain gauge catch. Describe different types of Rain gauges with diagram.

[06]

B. Describe: Working of Six's Thermometer and Hair Hygrometer.

[06]

OR

B.i) Briefly explain: working of Cup anemometer.

[03]

B.ii) Construction of Pyrgeometer.

[03]

(1)

(P.T.O.)

Q.4. A. What is the Basic principle behind the HPLC? Explain the various parts of HPLC showing with ray diagram. [06]

B. Explain laws behind the IR Spectroscopy. Describe the different molecular vibration movement and light source used for IR Spectroscopy. [06]

OR

B. Narrate the different types of detectors used in Gas Chromatography techniques. [06]

Q.5. A. Write a note on different types of Water Samplers in details. [06]

B. What do you mean by TLC? Explain the Principle, Development methods and methods for application of adsorbents. [06]

OR

B. What is the basic principle of Centrifuge? Enumerate different types of the Rotors used in the Centrifuge. [06]

Q.6. A. What is the basic principle of Centrifuge? Enumerate different types of the Rotors used in the Centrifuge. [06]

B. Find out S.D. of Simple Series (16, 13, 17, 22), and Continuous Series (10, 11, 12, 13, 14, 15, 16; Frequency: 2, 7, 11, 15, 10, 4, 1). [06]

OR

B. In a school, an intelligent test (IT) was given to a small group of children.. From your observations, find out the degree of correlation from the below table. [06]

Children No.	IT Score	Marks
1	7	10
2	6	7
3	5	4
4	7	5
5	8	4
6	9	7
7	6	4
8	8	7

← X →
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