

(A-7)

No. of Printed Pages: 02

Sardar Patel University
M. Sc. Int. Biotechnology, Fifth Semester Examination
Saturday, 16th April, 2016
10:30 a.m. - 01:30 p.m.
PS05CIGB05: Bioinstrumentation

Note:

1. Figures to the right indicate marks.
2. Draw neat and labeled diagram, wherever necessary.

Q-1 Attempt the followings

[08 X 01 = 08]

1. The pH was given by _____.
(a) Sorenson (b) Stephans (c) Flamming (d) Robert Hook
2. One Svedberg unit (S) is equal to _____.
(a) 10^{-10} (b) 10^{-11} (c) 10^{-12} (d) 10^{-13}
3. The first compound microscope was invented by _____.
(a) Hans and Zachrias Janssen (b) Antony van Leeuwenhoek
(c) Robert Hook (d) All of them
4. Total magnification obtained with an ocular of 10X an objective of 40 X is _____.
(a) 55 (b) 400 (c) 600 (d) None of these
5. _____ molecules have amphoteric nature.
(a) Proteins (b) Nucleic acids
(c) Carbohydrates (d) Lipids
6. Agarose is obtained from _____.
(a) sea weeds (b) soya bean
(c) castor seed (d) cotton seed
7. Volatile compound can be separated by _____ chromatography only.
(a) GC (b) HPLC (c) Ion-exchange (d) Affinity
8. To purify water _____ of chromatography can be used.
(a) Ion-exchange (b) Affinity (c) Gel-filtration (d) HPLC

Q-2 Answer the following questions (Any seven).

[07 X 02 = 14]

- i. Write the factors affecting the pH measurement.
- ii. Which are different forces act on particles during centrifugation?
- iii. What is resolving power?

P.T.O.

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- iv. Define : Electromagnetic lens
- v. Differentiate between ascending and descending chromatography.
- vi. Give applications of affinity chromatography.
- vii. Write principal of GC.
- viii. What is advantage of using two dimensional electrophoresis?
- ix. Give the use of Pulse-field electrophoresis.
- Q-3 (A) Give schematic representation of pH meter. [06]
- (B) Discuss the construction and working of Hydrogen Electrode in detail. [06]
- OR**
- (B) Describe the different types of rotor used in centrifugation technique. [06]
- Q-4 (A) Sketch the neat and labeled diagram of a compound microscope. [06]
- (B) Explain the principle of image formation by the Phase contrast microscope. Give its application. [06]
- OR**
- (B) Discuss the instrumentation of transmission electron microscope (TEM). [06]
- Q5 (A) Give an account on Thin layer chromatography. [06]
- (B) Depict on Gel filtration chromatography. [06]
- OR**
- (B) Explain working of HPLC. Give its application. [06]
- Q6 (A) How does SDS-PAGE work in separation of protein? [06]
- (B) Briefly explain the separation of molecules carried out by electrophoresis. [06]
- OR**
- (B) Elaborate role of agarose for separation of DNA. [06]

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