

(25) SEAT No. _____

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY
T.Y.B.Sc. Examination, FIFTH Semester
Saturday, 3rd November 2018
Time : 10.00 am To 1.00 pm
Instrumentation Course Code : US05CINS06
Course Title : Analytical Instrumentation

Total Marks : 70

Q-1 Write answers to the following multiple choice questions in your answer book by [10] selecting the proper option.

- (1) To have a good operation, the column should have temperature control facility up to ___ °C
(a) 100 (b) 200 (c) 300 (d) 400
- (2) The internal diameter of the column is usually between
(a) 1 to 3 mm (b) 4 to 8 mm (c) 9 to 12 mm (d) 13 to 20 mm
- (3) The full form of TLC is
(a) Thermo-electric Lead Chromatography (b) Thin Layer Chromatograph
(c) Temperature Leading Chromatograph (d) Thick Layer Chromatograph
- (4) The pH number represents ___ ion in compound.
(a) H⁺ (b) Cl⁻ (c) O⁻² (d) K⁺
- (5) To accommodate more lengthy column in oven, the most suitable shape is
(a) straight (b) circular (c) helical (d) square
- (6) The life of electrode is ___ days.
(a) 1 to 5 (b) 7 to 20 (c) 21 to 25 (d) 26 to 30
- (7) The full form of FID is
(a) Fire Ionic Detector (b) Flame Ionization Detector
(c) Fire Ionization Detector (d) Flame Ionic Detector
- (8) A method of physical separation of elements from unknown compound is called
(a) liquid chromatography (b) gas chromatography
(c) paper chromatography (d) thin layer chromatography
- (9) pH of pure water is ___
(a) 2 (b) 5 (c) 6 (d) 7
- (10) The full form of HETP is
(a) Height Equivalent to Theoretical Plate
(b) Hydraulic Energy to Thin Plate
(c) Hydraulic Equivalent to Theoretical Plate
(d) Height Equivalent to Thin Plate

Q-2 Answer the following questions in brief. (Answer any Ten Questions)

[20]

- (1) Write a brief note on AID.
- (2) Enlist the types of Gas Chromatograph detectors.
- (3) Enlist the basic parts of Gas Chromatography.
- (4) Write a brief note on Buffer-Solution.
- (5) Enlist the types of pH meters.

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- (6) Write a brief note on AID.
- (7) Write and explain in brief Nernst equation.
- (8) Write a brief note on packed column.
- (9) How can we calculate pH of pure water?
- (10) What do you mean by pH?
- (11) Define chromatograph. Enlist the types of chromatography.
- (12) Write a brief note on carrier Gas Supply.
- Q-3 (a) Explain in detail Chopper Amplifier type pH meter. [6]
 (b) Write a note on direct recording pH meter. [4]
- OR
- Q-3 (a) With necessary figure explain glass electrode. [5]
 (b) Write a note on combined electrode. [5]
- Q-4 (a) Write a note on ECD. [5]
 (b) Write a note on FID. [5]
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- OR
- Q-4 With necessary diagram explain gas chromatography. [10]
- Q-5 (a) Explain in detail magnetic wind instrument. [6]
 (b) Write a note on temperature compensation in conductivity measurement. [4]
- OR
- Q-5 (a) Explain paramagnetic oxygen gas analyzer. [5]
 (b) Write a note on conductivity meter. [5]
- Q-6 (a) Write a note on sample injection system in liquid chromatography. [5]
 (b) Write a note on high pressure pump. [5]
- OR
- Q-6 With necessary block diagram explain in detail liquid ~~gas~~ chromatography. [10]

