

SEAT No. _____

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[82/A47]

Sardar Patel University

B. Sc. (Semester – IV) Examination

INDUSTRIAL CHEMISTRY & INDUSTRIAL CHEMISTRY VOCATIONAL

COURSE NO: US04ECHE06 (Instrumental Method Of Chemical Analysis)Date: 13th April 2017, Thursday

Time: 02:00pm to 04:00pm

Notes: Figures to the right indicate full marks.

Total marks: 70

Q.1 Answer the following Multiple Choice Questions. (All are compulsory) (10)

- According to ohm's law, strength current (I) flowing through of current is proportional to _____.
 A. Voltage
 B. Resistance
 C. Potential different
 D. None of these
- Which of the following electrode gives no salt error?
 A. Quin hydrone electrode
 B. Hydrogen electrode
 C. Glass electrode
 D. Antimony electrode
- Which of the following electrode is not affected by dissolve oxygen?
 A. Glass electrode
 B. Hydrogen electrode
 C. Liq-liq electrode
 D. Quinhydrone electrode.
- The development of paper is done by allowing the solvent to travel up the paper is known as _____ chromatography.
 A. Ascending – descending
 B. Descending
 C. Ascending
 D. Two dimensional
- High polarity solvent is _____.
 A. Acetone
 B. Water
 C. Benzene
 D. N- butane
- _____ is not used as stationary phase in chromatography.
 A. Alumina
 B. Silica
 C. Glass
 D. Methanol
- In gas chromatography the mobile phase used is gas but stationary phase....
 A. Solid & Liquid
 B. Liquid & Gas
 C. Solid, Liquid, Gas
 D. None of them.
- The record of the emergence of various compound against retention time is called...
 A. Histogram
 B. Chromatogram
 C. Fistogram
 D. None
- The wave length in ultra-violate range is ...
 A. 2000-4000 Å°
 B. 4000-8000 Å°
 C. 8000-12000 Å°
 D. None of above
- The total energy of molecule is given by ...
 A. $E_{vib} + E_{rot} + E_{ele}$
 B. $E_{vib} - E_{rot} - E_{ele}$
 C. $E_{rot} - E_{vib} + E_{ele}$
 D. None of them.

Q.2 Answer the following short questions. (ANY TEN) (20)

1. Give advantages of conductometric titration.
2. Define term specific resistance and specific conductance.
3. Write disadvantage of hydrogen electrode.
4. Enlist factors effecting column efficiency.
5. Write limitations of TLC.
6. Enlist superiority of TLC over paper chromatography.
7. Write the advantages of gas chromatography.
8. Discuss on the carrier gas used in GC.
9. Write the principal of HPLC technique.
10. List out the advantages of double beam instrument.
11. The characteristic band of $n \rightarrow \pi^*$ in the pyridine generally disappears in acidic solution, Explain.
12. Why, saturated hydrocarbons can serve as the best solvent for UV measurements.

Q.3

- A. Discuss the method of conductance measurement with Wheatstone bridge and also determine cell constant. (06)
- B. Write a note on "Quinhydrone electrode". (04)

OR

Q.3 Discuss the following: (10)

- A. Glass electrode.
- B. Hydrogen electrode.

Q.4 Giving principle, write detail note on "Paper Chromatography". (10)

OR

Q.4 Discuss experimental procedure for "Column Chromatography". (10)

Q.5 Write a notes on following:

- A. Gas Chromatography and its applications. (06)
- B. Flame Ionization Detector (FID). (04)

OR

Q.5

- A. Write a note on "Electron Capture Detector" (ECD). (04)
- B. Giving schematic diagram of HPLC, discuss its applications. (06)

Q.6

- A. Discuss the Lambert's-Beer's law and also discuss on factors responsible for the deviation from the laws. (06)
- B. Write a short note on sources used for UV-Visible spectrophotometer. (04)

OR

Q.6 Write notes on following: (10)

- A. Double beam UV spectrophotometer.
- B. Visual comparators.

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