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SEAT No._____ No. of Printed Pages : 2

[14/A-11]

Sardar Patel University

B. Sc. (Semester – IV) Examination

17-04-2018, Tuesday. TIME: 10:00 TO 12:00

Industrial Chemistry & Industrial Chemistry Vocational

COURSE NO: US04ECHE06 (Instrumental Methods Of Analysis.)

Notes: Figures to the right indicate full marks. Total marks: 70

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

1. 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
2. Which of the following electrode gives no salt error?
   A. Quin hydrone electrode
   B. Hydrogen electrode
   C. Glass electrode
   D. Antimony electrode
3. Which of the following electrode is not affected by dissolve oxygen?
   A. Glass electrode
   B. Hydrogen electrode
   C. Liq-liq electrode
   D. Quinhydrone electrode.
4. If solid stationary phase & liquid mobile phase is used in the chromatography then the... method is known as.....
   A. Column
   B. Thin layer
   C. HPLC
   D. All of above.
5. The porous medium without any movement through which mixture move is called ....
   A. Moving phase
   B. Stationary phase
   C. Both 1 & 2
   D. None of above
6. R_M, R_F, R_X are called .....
   A. Migration parameters
   B. Travelling agent
   C. Both 1 & 2
   D. None of these.
7. A support where porous particle are coated onto an inert solid core such as a glass bead of about 40 µm in diameter is called...
   A. Sellicular
   B. Mellicular
   C. Pellicular
   D. None
8. The type of mobile phase used in HPLC separation is depend.....
   A. Type of separation component
   B. Type of stationary phase
   C. Both 1 & 2
   D. None
9. Due to hydrogen bonding in Ultra violet absorption wavelength is.....
   A. Higher
   B. Shorter
   C. No effect
   D. None of these
10. Which instrument is used for large wavelength Region?
    A. Colorimeter
    B. Photometer
    C. Spectrophotometer
    D. None of these.

[P.T.O.]

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

1. Explain term Specific Conductance.
2. Enlist the various advantage & disadvantage of hydrogen electrode.
3. Define term Equivalent Conductance.
4. Discuss the factors effecting column efficiency.
5. Give the type of detectors for identification of compound.
6. Write limitations and scope of TLC.
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, why?
12. Saturated hydrocarbons can serve as the best solvent for uv measurements.

Q.3 Write a notes on following: (10)

A. Hydrogen electrode and its limitations.
B. Quinhydreone electrode.

OR

Q.3 Discuss the following: (10)

A. Method of conductance measurement with Wheatstone bridge.
B. Acid-base titration is carried out with Potential measurements.

Q.4 Write a detail note on "PAPER CHROMATOGRAPHY". (10)

OR

Q.4 Write a note on "COLUMN CHROMATOGRAPHY". (10)

Q.5 Draw the schematic diagram of GC and explain the main parts of it. (10)

OR

Q.5 Write a notes on following: (10)

A. Flame Ionization Detector (FID)
B. Thermal conductivity detector (TCD).

Q.6 Discuss the Lambert's-Beer's law and also discuss on factors responsible for the deviation from the laws. (10)

OR

Q.6 Write a short notes on: (10)

A. Sources used for UV/VISIBLE spectrophotometer.
B. Visual Comparators.

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