

U.G. 3rd Semester Examination - 2020**CHEMISTRY****Course Code: BCEMSEHT305****Course Title: Basic Analytical Chemistry**

Full Marks : 50

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Choose the correct alternative of the following: 2×15=30
- i) Which type of soil acidity is measured by soil pH?
a) Passive acidity b) Active acidity c) Total acidity d) Exchangeable acidity
- ii) The chelating agent used in absorption of iron in acidic medium is
a) EDTA b) Di-ethylene tri amine penta acetate (DTPA)
c) Ethylene di amine d) Acetic acid
- iii) The temporary hardness in water is due to _____.
a) OH^- b) CO_3^{2-} c) H^+ d) HCO_3^-
- iv) Hardness of water conventionally expressed in terms of equivalent amount of _____.
a) H_2CO_3 b) MgCO_3 c) CaCO_3 d) Na_2CO_3
- v) How many grams of MgCO_3 dissolved per litre gives 84 ppm hardness?
a) 70.56 mg/L b) 48.23 mg/L c) 81.49mg/L d) 66.12 mg/L
- iv) How does solubility of oxygen in water change with respect to temperature“?
a) It decreases with increase in temperature
b) It increases with increase in temperature
c) It decreases with decrease in temperature
d) It does not depend on temperatnr
- vii) Adulterants present in coffee
a) Chicory seeds b) Artificial Dye
c) Metanil Yellow d) Rhodamine Blue
- viii) In chromatography, which of the following can the mobile phase be made of?
a) Solid or liquid b) Liquid or gas c) Gas only d) Liquid only
- ix) Liquid chromatography can be performed in which of the following ways?
a) Only in columns
b) Only on plane surfaces
c) Either in columns or on plane surfaces
d) Neither in columns nor on plane surfaces

[Turn Over]

- x) For the separation of which of the following substances, Gas-solid chromatography is being used?
- a) Thermally stable organic components b) Volatile organic components
c) Thermally stable inorganic components d) Low molecular weight gaseous species
- xi) In ion exchange process, the iron ions are removed from the water.
- a) by cation exchanger resin b) by anion exchanger resin
c) by both cation and anion exchanger d) none the above
- xii) Ion-exchange resin is _____.
- a) Highly reactive b) Low molecular weight
c) Organic polymer with porous structure d) Soluble
- xiii) Which of the following ion get released ion get released from the anion exchange column?
- a) CO_3^{-2} b) OH^- c) Cl^- d) SO_4^{-2}
- xiv) Which is a macronutrient in soil?
- a) Na b) P c) Cl d) Fe
- xv) No of significant number present in 0.002 is
- a) 2 b) 3 c) 4 d) 1

2. Answer the following:

2×10=20

- i) What is relative Error?
- ii) State the colour of EBT as (Eriochrome Black-T) free indicator and as Metal indicator complex.
- iii) What do you mean by R_f ? Explain with diagram.
- iv) Mention some important properties of a good metal indicator.
- v) What is precision?
- vi) What is Mobile phase?
- vii) Write down basic principles of Thin Layer Chromatography.
- viii) Name the two methods by which dissolved oxygen in water can be measured.
- ix) What is indeterminate error?
- x) Draw the structure of calcon and mention its colour in different pH.
- _____