UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Seventh Semester – Spring 2022

Roll No. .....

Paper: Analytical Chemistry (Sp. Theory-I) **Course Code: CHEM-412** **Time: 3 Hrs. Marks: 60**

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: (15x2=30)

i. Define Van Deemter Equation.
ii. Define retention time. On what factor does it depend?
iii. Differentiate between Normal phase chromatography and Reverse phase chromatography.
iv. Differentiate between split mode injectors and splitless mode injectors.
v. What is liquid junction potential in potentiometry?
vi. Differentiate between primary and secondary reference electrode.
vii. How is calomel electrode represented?
viii. Define standard electrode potential.
ix. What is thermocouple?
x. Give two differences between DSC and DTA.
xi. What is thermal analysis?
xii. Define thermometric titration.
xiii. What is pre column in HPLC?
xiv. Why is derivatization required in HPLC?
xv. What is reverse phase mode in HPLC?

Answer the following questions.

Q.2: a) Derive Nernst Equation. (5)
b) Give applications of Nernst Equation. (5)
Q.3: a) Why is derivatization carried out in gas chromatography? (5)
b) Describe types of Capillary column in Gas chromatography. (5)
Q.4: a) Describe applications of TGA curves. (5)
b) Describe different problems while using HPLC. (5)