

**4<sup>th</sup> Semester TDC Examination (Non-CBCS)**

**Subject – Chemistry (Core)**

**Course – NM-401 (Physical Chemistry)**

**Full marks – 12**

**Time = 1 h**

1. Answer any *six* questions from the following:

2 x 6 = 12

- a) Define strong and weak electrolytes and give one example of each.
- b) What is degree of ionization of an electrolyte? What are the factors affecting it?
- c) Define common ion effect and give an example of it?
- d) Distinguish solubility product from ionic product. What is the relation between solubility and solubility product?
- e) Differentiate between the order and molecularity of a reaction?
- f) Determine the expression of half-life period of first order reaction?
- g) Prove  $t_{99\%} = 2 \times t_{90\%}$
- h) Define Joule-Thomson effect. In Joule-Thomson effect, which physical quantity remains constant?
- i) Derive the expression of degree of hydrolysis and hydrolysis constant of a salt of strong base and weak acid.
- j) What is basic buffer? Give one example. Define buffer capacity.