

- Q-4** **Attempt all questions** **(14)**
- a) Derive an equation for heat transfer by conduction through compound resistance in series. **(7)**
 - b) Classify different types of glass used in pharmaceutical industry. **(7)**
- Q-5** **Attempt all questions** **(14)**
- a) Discuss in detail non-ferrous metals used during construction of pharmaceutical plant. **(7)**
 - b) Explain tubular heater with the help of a neat labeled diagram. **(7)**
- Q-6** **Attempt all questions** **(14)**
- a) What is perfect black body? Describe Stefan-Boltzman's law for the radiation heat transfer. **(7)**
 - b) Write a note on Globe valve. **(7)**
- Q-7** **Attempt all questions** **(14)**
- a) Write a note on Belt –conveyer. **(7)**
 - b) Write the basic elements of process control system. **(7)**
- Q-8** **Attempt all questions** **(14)**
- a) Discuss different types of graphs and graphic representation. **(7)**
 - b) A salt solution originally contains 4% by weight NaCl in water is evaporated to 5% by weight NaCl. (NaCl is a tie substance) (a) What percentage of water evaporated? (b)What is the reduction in original solution? **(7)**

