

SUBJECT: PHARMACEUTICAL ENGINEERING - II

Day: Wednesday
Date: 21/11/2018

W-2018-4070

Time: 10.00 A.M. TO 01.00 P.M.
Max. Marks: 60

N.B:

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of the remaining attempt **ANY TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answer to the both sections should be written in **SEPARATE** answer books.
- 4) Draw neat and labeled diagram **WHEREVER** necessary.

SECTION - I

- Q.1** Attempt **ANY FIVE** of the following: (10)
- a) What are steam traps? Classify them.
 - b) Differentiate between distillation and evaporation process.
 - c) Give significance of drying in pharma industry.
 - d) Classify evaporators.
 - e) Draw labeled diagram of shell and tube heat exchanger.
 - f) What is spray-congealing?
- Q.2** a) Explain in detail theory of drying. (06)
- b) Add a note on boiling inside a vertical tube. (04)
- Q.3** a) Give detailed account on mechanisms of heat transfer. (06)
- b) Explain principle and working of fluidized bed dryer. (04)
- Q.4** Write short notes on **ANY TWO** of the following: (10)
- a) Fractional distillation
 - b) Raoult's law and its deviation
 - c) Vapour recompression

SECTION - II

- Q.5** Attempt **ANY FIVE** of the following: (10)
- a) Give significance of packaging in pharma industry.
 - b) Explain factors affecting caking of crystals.
 - c) What is melt crystallization?
 - d) Enlist particle engineering techniques.
 - e) Give applications of humidity measurement in pharmacy.
 - f) Enlist advantages and disadvantages of glass as a packaging material.
- Q.6** a) Explain in detail phenomenon of 'Supersaturation'. (06)
- b) Explain principle and working of circulating magma crystallizer. (04)
- Q.7** a) Explain in detail types of hygrometers. (06)
- b) Add a note on types of containers and closures. (04)
- Q.8** Write short notes on **ANY TWO** of the following: (10)
- a) Fluidized bed granulator
 - b) Extruder and spheronizer
 - c) Plastic as a packaging material.

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