B. Tech.

(SEM. VI) EXAMINATION, 2007

SOLVENT EXTRACTION OF OIL SEEDS & OIL BEARING MATERIALS

Time : 3 Hours] [Total Marks : 100

Note : (i) Attempt all questions.
       (ii) All questions carry equal marks.

1 Attempt any four of the following : 5x4=20
   (a) Explain conditioning of oilseed and its significance.
   (b) Explain the working of various rollers used for size reduction with the help of a suitable diagram.
   (c) Discuss the significance of size reduction of oil bearing material prior to solvent extraction.
   (d) Discuss the significance of optimum moisture content of oil seeds. Also discuss the importance of cooking.
   (e) What are the important pretreatment steps of rice bran before solvent extraction?
   (f) Enlist various machineries and process vessels used in a complete solvent extraction plant and explain their functions briefly.

2 Attempt any two of the following : 10x2=20
   (a) Mention the solvents commonly used in commercial extraction of oils from oilseeds along with their properties. Also discuss various properties of ideal solvent.

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(b) Explain the working of Lurgi extractor with the help of neat flow diagram.
(c) Discuss the theory of diffusion and various factors affecting the rate of diffusion.

Attempt any two of the following: 10x2=20
(a) Discuss the solvent recovery system from meal with the help of neat flow diagram.
(b) Describe all the safety parameters required in a solvent extraction plant.
(c) Explain the working of desolventizer toaster with the help of a neat flow diagram.

Attempt any two of the following: 10x2=20
(a) What do understand by supercritical fluids? Also discuss the principle and applications of supercritical CO₂ for extraction of edible oils.
(b) Write short notes on:
   (i) Hydrofluorocarbon extraction
   (ii) Alcoholic solvents for oil extraction
(c) Give the significance of energy conservation. Also discuss the various means of energy conservation in solvent extraction plant.

Attempt any two of the following: 10x2=20
(a) Give the significance of detoxification of oil meals. Elaborate the process for detoxification of cotton seed.
(b) Discuss the continuous solvent extraction process for oil recovery from castor seed with help of a flow diagram.
(c) What are the different methods of rendering? Also discuss the production of fish oil with a flow diagram.