Code No: **RT42352**   **R13**   Set No. 1

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019
AGRO INDUSTRIES AND BI-PRODUCT UTILIZATION
(Agricultural Engineering)

Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Explain the three grades of silicon. [3]
    b) Write the three principal groups of raw materials used for ethanol fermentation. [3]
    c) Enlist the by-products of banana. [4]
    d) How flaking is done in the preparation of animal feed? [4]
    e) Enlist the chemical reagents used in Iodometric method of measuring dissolved oxygen. [4]
    f) What is diffused air system in aerobic lagoons? [4]

PART–B *(3x16 = 48 Marks)*

2. a) Explain the step-wise procedure involved in making ceramic bodies from rice husk ash. [8]
    b) The ultimate analysis of rice husk is as follows: C-39%, H_2-5%, O_2-32.7%, N_2-2%, H_2O-3.6% and ash-17.6%. Assuming molecular weight of air and flue gas as 29, compute the actual air required and flue gas produced per kg of rice husk if 20% extra air is supplied for combustion of rice husk. [8]

3. a) Discuss the production process of ethyl alcohol by SSF process. [8]
    b) Explain the following (i) Edible copra and   (ii) Milling of copra [8]

4. a) Explain the various processes for the extraction of CSNL from the raw nuts. [8]
    b) How banana cheese is prepared from peel? Explain. [8]

5. a) Discuss the working principle of a pellet mill used in animal feed preparation. [8]
    b) Explain the production of Sulphate pulp by Kraft process. [8]

6. a) Find the daily waste volume and BOD from a 200 cow dairy farm on pasture having cows averaging 400 kg mass. Assume BOD=0.98 kg/day and raw manure production as 54 kg/day for 500 kg cow and specific gravity of raw manure as 1.0. [8]
    b) Explain the factors affecting the choice of storage facility for manures and slurries. [8]

7. a) What is aerobic treatment of agricultural waste? What are the advantages and disadvantages of aerobic lagoon? [8]
    b) What is briquetting? Explain the technology of making briquetted fuel. [8]