



B.E. / B.Tech. (Full Time) ARREAR EXAMINATIONS, APRIL / MAY 2011

AGRICULTURAL AND IRRIGATION ENGINEERING BRANCH

FIFTH SEMESTER – (REGULATION 2008)

AI 9029 – POST HARVESTING TECHNOLOGY

Time : 3 hrs

Max Marks : 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

- 1) Express the post harvest losses in percentage in paddy - rice system in South East Asia.
- 2) What is roundness ratio?
- 3) 750 kg of paddy at 21% m.c. (wb) is dried to 12% m.c. (wb) for milling. Calculate the amount of moisture removed in drying.
- 4) What are the components of a psychrometric chart?
- 5) List out 4 separators and the properties by which a mixture of grains / solid materials be separated.
- 6) What is the function of a debearder?
- 7) What are the physico-chemical changes that take place during parboiling of paddy?
- 8) Write the difference between parboiled rice and steamed rice.
- 9) How is the existing on farm storage situation?
- 10) Write a note on pestle and mortar method of milling.

Part – B (5 x 16 = 80 Marks)

- 11) a) List out the various heat transfer processes in agricultural processing activities with examples. Also, derive an expression for heat conduction through a slab. (8)
- b) Discuss in detail the various unit operations involved in the post harvest processing of grains. (8)
- 12) a) i) Explain the destructive methods of determination of moisture. (8)
- ii) What is drying? Explain the drying process in detail. (8)

{or}

b) i) The relationship between moisture content (M) of paddy and period of maturity (N) is given as $M = 32 - 0.3 N$ where $13 \leq N \leq 43$ and yield (Y) and period of maturity (N) as $Y = -510 + 310N - 3 N^2$ where $13 \leq N \leq 43$. Estimate the optimum stage of harvest for maximum yield and what is the maximum yield? Also find out the moisture content of paddy grain at the time of harvest. (6)

ii) Explain the manual threshing and pedal threshing methods. What are the losses that occur during threshing? (10)

13) a) i) With a neat sketch, explain the features and working of a groundnut decorticator. (8)

ii) What are frictional separators? How will you find out the velocity of the particle at any point on the inclined plane? (8)

(or)

b) i) Explain in detail how the layout of a seed processing unit is carried out. (8)

ii) Explain the features and working of a single scalper drum cleaner with a neat sketch. (8)

14) a) i) What are the physicochemical changes that take place during parboiling and why is parboiling recommended? (8)

ii) Explain the various processes involved in flour milling. (8)

(or)

b) i) How is the hulling mechanism classified? Explain with neat sketch. (8)

ii) Explain the milling process of pulses in detail. (8)

15) a) i) What are the requirements for a good storage system? Discuss the parameters to be evaluated for the same. (8)

ii) Discuss the various processes of a modern rice mill with a flow chart. (8)

(or)

b) i) What are the common pests that affect the stored grains and how are they managed? (8)

ii) Explain the working of a bucket elevator with a neat sketch. (8)