A   Reg. No. :

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Question Paper Code: 54A02

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Fourth Semester

Agriculture Engineering

15UAG402-POST HARVEST TECHNOLOGY

(Regulation 2015)

(Usage of psychometric chat is approved)

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Duration: Three hours   Maximum: 100 Marks

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Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

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1. Farmers use moisture content based on   CO1- R

    (a) Dry basis   (b) Wet basis   (c) Both a and b   (d) None of these

2. A mixing type continuous flow dryer is   CO1- R

    (a) Flat bed dryer   (b) LSU dryer   (c) Recirculating dryer   (d) None of these

3. The separator which separates the grains based on roundness is   CO2- R

    (a) Disk separator   (b) Inclined draper   (c) Spiral separator   (d) Pneumatic separator

4. Recent innovation in belt conveyor system for grain handling is   CO2- R

    (a) Belt speed upto 4.5 m/s   (b) Belt speed from 2.5- 2.8 m/s

    (c) Belt speed upto 3.5 m/s   (d) Belt speed upto 5.5 m/s

5. Pre milling treatment given to paddy prior to milling to reach   CO3- R
    maximum recovery of head rice is termed as

    (a) Gelatinization   (b) Hydrolysis   (c) Bagging   (d) Parboiling

6. _____ refers to the removal of large particles in initial process   CO3- R

    (a) Grading   (b) Sorting   (c) Scalping   (d) None of these

7. EMC is attained by a grain with respect to   CO4- R

   (a) Atmospheric temperature   (b) Relative humidity   (c) Both a and b   (d) None

8. Glazing of rice is done using   CO4- R

   (a) Talc powder   (b) Hydrogen peroxide   (c) Water   (d) CO_2

9. Limitation of Pneumatic Conveying is/ are   CO5- R

   (a) Erosion of solid surfaces   (b) Erosion of duct system

   (c) Impact between particles   (d) All of the above

10. The formula used to calculate milling efficiency of dhal milling system is   CO5- R

    (a) Kupritz formula   (b) Newton formula   (c) Gauss formula   (d) Wimberly formula

PART – B (5 x 2= 10 Marks)

11. Differentiate between wet basis and dry basis moisture content of grain.   CO1- R

12. Define Psychrometry. What are its applications?   CO2- R

13. Define effectiveness of screen. Derive an expression for overall effectiveness.   CO3- R

14. What are the factors that influence the selection of grain conveying system?   CO4- R

15. Differentiate between vertical whitening cone and vertical polishing cone.   CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) Define threshing. Explain the types of mechanical threshers with   CO1- U   (16)
         a neat diagram.

                                        Or

    (b) Explain the direct and indirect method of measuring the moisture   CO1- U   (16)
         content of grains.

17. (a) Explain any five mechanical dryer with a neat sketch.   CO2- U   (16)

                                        Or

    (b) (i) 500 kg of paddy at 22 % moisture content (wb) is dried to   CO2- Ana   (8)
         14 % moisture content (wb) for milling. Calculate the amount of
         moisture removed in drying.

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(ii) Calculate the equilibrium moisture content of brinjal seed at relative humidity of 10 % and temperature of 50 ^{O}C using Henderson's equation. Constant c is 6.5×10^{-6} and n is 1.8.   CO2- Ana   (8)

18. (a) Explain the principle, construction and working of Indented cylinder separator and Spiral separator with a neat sketch.   CO3- Ana   (16)

Or

(b) Differentiate between magnetic separator and colour separator with the help of a labeled diagram.   CO3- Ana   (16)

19. (a) Explain screw conveyor with the help of a neat diagram.   CO4- U   (16)

Or

(b) (i) Differentiate between discharge methods of bucket elevators.   CO4- Ana   (8)

(ii) Explain in detail about elevator belt and drive mechanism of bucket elevator.   CO4- Ana   (8)

20. (a) Differentiate between oil expression and extraction. Explain any two mechanical expression device with a labeled diagram.   CO5- U   (16)

Or

(b) Explain the wet milling and dry milling process of dhal with the help of the flow charts.   CO5- U   (16)

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