



Name : .....  
Roll No. : .....  
Invigilator's Signature : .....

**CS / B.TECH (BT) / SEM-8 / ID-814B / 2011**

**2011**

**POST-HARVEST TECHNOLOGY**

*Time Allotted : 3 Hours*

*Full Marks : 70*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

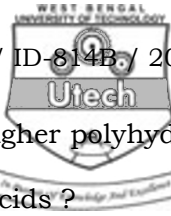
1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) Oil from oil seeds can be decolorised by
  - a) silicon dioxide
  - b) sephadex
  - c) activated carbon
  - d) alginate.
  
- ii) Psychometric chart can be used to find out
  - a) Dew point temperature
  - b) Bound moisture content
  - c) Saturated volume
  - d) Equilibrium moisture content.



- iii) Which of the following is not a factor affecting the formation of bran during storage ?
- a) Storage temperature
  - b) Storage pressure
  - c) Moisture content of bran
  - d) Storage relative humidity.
- iv) Moisture migration in stored grain occurs due to
- a) changes in temperature
  - b) changes in moisture content
  - c) changes in pressure
  - d) none of these.
- v) Which of the following can be used as a curative measure in stored grain spoilage ?
- a) Heating
  - b) Radiation
  - c) Fumigation
  - d) All of these.
- vi) Deodourization is
- a) a refining process
  - b) a mechanical extraction process
  - c) a solvent extraction process
  - d) not compulsory for producing edible oil.



vii) Which of the following are mixtures of higher polyhydric alcohols (other than glycerol) with fatty acids ?

- a) Soaps
- b) Waxes
- c) Oilcakes
- d) All of these.

viii) If the partial pressure of water vapour ( $p_w$ ) in air is low and total pressure is 1 atm, absolute humidity may be expressed as

- a)  $H = p_w / (1.611 - p_w)$
- b)  $H = 18 p_w / [29(1 - p_w)]$
- c)  $H = 18 / (29 p_w)$
- d) none of these.

ix) Theoretical capacity of grinding of grain in roller mill does not depend upon

- a) bulk density of grain
- b) sphericity of the grain
- c) length of the rolls
- d) clearance between the rolls.



- x) Wet bulb temperature is defined as
- a) temperature when the thermometer is kept in contact with water
  - b) equilibrium temperature in air-water system
  - c) adiabatic cooling temperature
  - d) temperature at which a mixture of air and water vapour becomes saturated.
- xi) The height to diameter ratio of storage bin is in the range of
- a) 5 : 1
  - b) 8 : 1
  - c) 10 : 1
  - d) 2 : 1.
- xii) Uniform drying cannot be obtained in which of the following dryers ?
- a) Rotary dryer
  - b) Baffle dryer
  - c) Flat bed batch dryer
  - d) All of these.
- xiii) Free fatty acids in rice bran are present in
- a) aluerone layer
  - b) testa layer
  - c) pericarp
  - d) endosperm.



**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

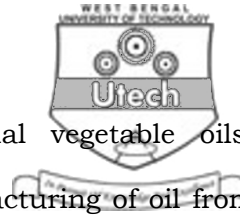
2. Briefly discuss the principle of convection dying.
3. Explain with a diagram, the operational principle of concave type huller.
4. What are the different methods for the detection of insect infestation in food grain ?
5. What kind of storage structure is being used in rural areas for grains ? Describe any one of them.
6. As a biotechnologist, what will be your suggestion to eradicate the problem during the processing of rice bran oil ?

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) What are the physical, chemical and biological changes take place during the storage of food grain. 8
- b) What are the different techniques or process will you use to control the rodents and pest during grain storage ? 7



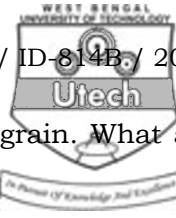
8. Define conventional and unconventional vegetable oils. What are the general methods of manufacturing of oil from oil seeds ? Describe the extraction of soyabean oil with a flow diagram. Describe in brief, the method of extraction of rice bran oil with a simple flow diagram. 2 + 2 + 5 + 6

9. a) What are the physio-chemical changes during parboiling and how does it affect the quality and quantity of grains ? 10

b) A drier is fed with wet solid to remove the moisture content from 90% to 20%. The product leaving the drier is admitted to an oven which further brings down moisture to 2%. If the drier can handle 1000 kg of wet solid per day, calculate

i) the weight of products leaving the drier and the oven per day

ii) the percentage of the original water that is removed in the drier and the oven. 5



10. a) Explain the respiration process in the grain. What are the structural components of paddy? 5
- b) Define heat utilization factor, coefficient of performance and effective heat efficiency with respect to a drier performance. 10

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