

158 PU Ph D Food Science and Technology

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Anemometer is an instrument used to measure:-

- Water flow rate
- Air temperature
- Pressure
- Air flow rate

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If an equation is dimensionally homogenous, it can be reduced to a relationship among a complete set of dimensionless products and the statement is known as:-

- Buckingham π Theorem
- Laplace Theorem
- Newtons Theorem
- Partial derivatives

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Sensible heating or cooling process of air-vapor mixture on pscrometric chart is represented by:-

- Curve
- Vertical line
- Horizontal line
- Inclined line

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The work required for crushing material is proportional to the logarithm of the ratio between initial and final diameters. This is the statement of:-

- Bond's Law
- Rittinger's Law
- Boyle's Law
- Kinks's Law

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Rotary or reel sterilizers are used for sterilizing:-

- Liquid foods in pipe
- Bulk materials

- Microwave
- Canned food

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The unit of thermal conductivity is:-

- W/m/k
- W/m² /K
- J/m-K
- Btu/ft².h⁰F

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Salt is a better food preservative than sugar because it:-

- Lowers the vapor pressure of food water by a larger extent
- Reduces pH
- Has lower molecular weight
- Kills microorganisms better

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Froude number is expressed as:-

- v/gD^2
- $V^2/\sqrt{2D}$
- v/\sqrt{gD}
- v/gD

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The difference between Pasteurizer and sterilizer is only in:-

- Temperature attained
- Heating agent used
- Design of equipment
- Cooling pattern

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A male bovine animal that is castrated after maturing is called:-

- Steer
- Veal

- Stag
- Heifer

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In a fluid flow system velocity at one point is measured by:-

- Orifice meter
- Anemometer
- Pitot tube
- Rotameter

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Unit for measurement of vacuum is:-

- Mm of Hg
- Kg/cm
- Kgf/cm²
- Torr

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Solid materials are generally:-

- Plastic
- Visco-plastic
- Elastic
- Visco-elastic

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Water activity of pure water is:-

- Less than one
- Equal to one
- Greater than one
- Zero

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Polystyrene can be used for:-

- Semi-acidic foods
- Neutral foods

- Acidic foods
- Basic foods

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A mixture of dry air and water vapor, when the air has diffused the maximum amount of water vapor into it, is called:-

- Dry-moist air
- Dry air
- Saturated air
- Moist air

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Water Vapor transmission rate (WVTR) is expressed as:-

- g/m²
- g/m²/24 hr
- g/cm²
- g/cm² /24 hr

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The fishy flavor of fish is due to:-

- Tri methyl amine oxide
- Diacetyl
- Methyl Urea
- Trimethyl amine

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The unit of thermal diffusivity is:-

- m/h⁰ C
- m² /h
- K Cal/m²/C
- m²/h⁰ C

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The freezable water can be detected by:-

- X-ray fluorescence

- Wet bulb and Dry bulb temperatures
- Gas Chromatography
- Differential Thermal Analysis

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An air stream (1 atmospheric pressure) at 100° C and 60% relative humidity has a partial pressure of water vapor equal to:-

- 0.53 bar
- 0.72 bar
- 0.41 bar
- 0.61 bar

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Most cereal foods contain mainly:-

- Fat
- Protein
- Crude fiber
- Carbohydrate

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Food processes can be analyzed in terms of:-

- Mass balance
- Unit operation
- Process chart
- Energy balance

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Nature of crop grain is:-

- Wet and dry
- Aerodynamic
- Humid
- Hygroscopic

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Ergun's equation is applicable to:-

- Porous media flow
- Turbulant flow
- Slit flow
- Laminar flow

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Pre-cooling of fruit and vegetable is done to:-

- Improve appearance
- Improve ripening
- Increase moisture loss
- Reduce the amount of refrigeration

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1000 Kg of milk ($C_p = 3.9 \text{ KJ/Kg/K}$) at 80°C is to be heated to 135°C in a sterilizer by injecting steam at 500 KPa (152°C , $\lambda = 2109 \text{ KJ/Kg}$, $C_{pw} = 4.18 \text{ KJ/Kg/K}$). If heat loss to the surrounding is 5%, the amount of steam to be injected is:-

- 106.8 Kg
- 101.7 Kg
- 103.3 kg
- 98.4 Kg

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The temperature at which the water in a fruit will freeze is dependent on the amount of the following present in the fruit:-

- Oil
- Fiber
- Sugar
- Water

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Malthu's Law on microbial growth is given by the differential equation, $dx/dt = \mu x$, where x is microbial density(mass of cells per unit volume of batch culture). μ is specific growth rate of culture(constant for the batch) and t is the time. The time required for microbial density to double will be:-

- $\ln 2 / \mu$
- $\mu / \ln 2$
- $\mu (\ln 2)^2$

- μIn^2

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The amount of husk that will be produced from 100 Kg of paddy is:-

- 22 Kg
- 32 Kg
- 42 Kg
- 52 Kg

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Pycnometer is used to measure:-

- Humidity
- Porosity
- Temperature
- Displacement

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Highest thermal conductivity is of:-

- Air
- Oxygen
- Hydrogen
- Water

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If the viscosity of the fluid decreases with time, the fluid is called:-

- Thixotropic
- Dilatent
- Rheopectic
- Bingham Fluid

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The white fuzzy growth caused by molds on meat is called:-

- White spot
- Green Patches
- Whiskers

- Black spot

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A fan delivers air at a flow rate of $15\text{m}^3/\text{s}$ against static pressure of 150 mm water gauge. The power requirement is given as 30 KW. The static efficiency of fan will be:-

- 75 %
 7.35%
 73.5 %
 7.5 %

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Darcy's law valid under conditions of:-

- Steady uniform flow
 Laminar flow with Reynold's number >10
 Reynold's number <1
 Newtonian flow

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Bernoulli's equation represents conservation of:-

- Energy
 Momentum
 Mass
 Force

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For laminar flow region, the drag coefficient is, in terms of particle Reynolds's numbers R_{ep} :-

- $64/R_{ep}$
 $18/R_{ep}$
 $24/R_{ep}$
 $1/R_{ep}$

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Major component of Vanilla flavor is:-

- 2,5-dimethyl vanillin
 2-hydroxy vanillin

- Vanillin
- 4- methyl vanillin

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Equilibrium moisture curve is a plot between:-

- Moisture content and air temperature
- Moisture content and air velocity
- Temperature and RH
- Moisture content and RH

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With increase in pressure, boiling point temperature of water_____ and enthalpy of evaporation _____.

- Decreases, Increases
- Increases, decreases
- Increases, Increases
- Decreases, decreases

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A patent for a method of treating food by microwave energy was filed by:-

- Raymond
- Tappan
- Dr. Percy Spencer
- Raytheon

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Accelerated testing calculation for shelf life prediction are based on:-

- Organoleptic Data
- Chemical Reactions
- Arrhenius Equation
- Temperature dependent linear models

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The meat food products order was promulgated in:-

- 1955

- 1983
- 1988
- 1973

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Adiabatic humidification is an:-

- Isentropic process
- Isobaric process
- Isothermal process
- Isoenthalpic process

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The refrigeration system works on which law of thermodynamics?

- Third
- Zeroth
- First
- Second

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Ratio of energy reflected by a body to the total radiation energy incident on a body is:-

- Emissivity
- Transmissivity
- Absorptivity
- Reflectivity

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Final phase of processing operation is:-

- Drying
- Treating
- Bagging
- Milling

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The difference between absolute and gauge pressure is:-

- Atmospheric pressure

- Vacuum pressure
- 0.4333PSI
- Zero

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Psychrometric chart is plotted between:-

- Absolute humidity and dry bulb temperature
- Dry bulb temperature and wet bulb temperature
- Relative humidity and enthalpy
- Enthalpy and dry bulb temperature

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Pascal is the unit of:-

- Viscosity
- Pressure
- Displacement
- Temperature

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The cut from the belly portion of hog carcass is called:-

- Ham
- Veal
- Mutton
- Bacon

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Vegetable seeds are stored at absolute temperature of 320K and relative humidity of 20%. If Henderson equation for equilibrium relationship is valid for this case, where the values of constants C and n are 6.5×10^{-6} and 1.8 respectively, the equilibrium moisture content of seeds will be:-

- 5.6%
- 20.5%
- 13.4%
- 10.2%

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Butter has thermal diffusivity of $8.6 \times 10^{-8} \text{ m}^2/\text{s}$. If the characteristic dimension of butter slab is 2 cm then Fourier number at one hour is:-

- 1.670
- 0.599
- 0.774
- 1.292

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One ton of refrigeration (K Cal/min) is equivalent to a heat load of:-

- 200
- 100
- 50
- 150

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An adiabatic process taken place at:-

- Pressure
- Enthalpy
- Heat
- Temperature

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The ratio of the mass of water vapours to the mass of dry air is called:-

- Relative humidity
- Partial pressure of water vapours
- Water ratio
- Absolute humidity

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The iron content of yolk is _____ mg/egg.

- 14.2
- 1.42
- 142.2
- 0.42

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Mass flow meter utilizes principle of:-

- Faradays Law
- Bernoulli's theorem
- Angular momentum
- Newton's third law

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If the moisture content of paddy on wet basis is 25%, then what should be the moisture content on dry basis?

- 30%
- 33%
- 20%
- 40%

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Parboiling is _____ treatment.

- Chemical
- Physical
- Thermal
- Hydrothermal

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Oil content (Whole mass basis) in rice bran ranges between:-

- 8-10%
- 17-22 %
- 11-16 %
- 25-35 %

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Angle of repose of wheat grain falls in the range of:-

- 30-40
- 31-44
- 23-28
- 20-25

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In a godown extra space for alleys for inspection and disinfecting of stacks is provided which is generally about:-

- 5%
- 1%
- 30%
- 20%

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Paddy contains _____% bran.

- 20
- 10
- 5
- 15

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When a granular material is permitted to flow from a point into a pile, the angle which the side of the pile makes with the horizontal is called:-

- Scant modulus
- Critical angle
- Angle of repose
- Tangent modulus

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Communitation means:-

- Extraction
- Distillation
- Leaching
- Size reduction

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The moisture content in pulse for dehusking and splitting should be:-

- 10-20 %
- 35%
- 0-10 %

- 20-30 %

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Pressure drop in fluid flow through granular materials is best estimated by:-

- Burke-Plummer equation
- Fourier equation
- Ergun equation
- Blake-Kozney equation

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Mixing index _____ with time.

- Increases
- Decreases
- Equals
- Does not change

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Jensenn equation is related to:-

- Size reduction of particle
- Storage silo design
- Grain transportation system
- Size separation of grains

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The arms of kneaders are of _____ shape.

- Circular
- Sigmoid
- Rectangular
- Triangular

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In reverse osmosis, particles sizes removal range is:-

- 5 nm-0.1 mm
- 10-50 mm
- 0.1-10m

- <5 nm

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In Jaw crusher, the angle made between fixed jaw and movable jaw:-

- 40-50°
- 30-40°
- 20-30°
- 10-20°

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Match the items under Group I with items under Group II.

Group I

P. Threonine

Q. Pyridoxine phosphate

R. Xylose

S. Oleic acid

Group II

1. Fatty acid

2. Sugar

3. Amino acid

4. Co-enzyme

- P-4, Q-3, R-1, S-2
- P-2, Q-1, R-4, S-3
- P-1, Q-2, R-3, S-4
- P-3, Q-4, R-2, S-1

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Separation on the basis of roundness is accomplished by:-

- Aspiration separator
- Spiral separator
- Roll separator
- Indented cylinder separator

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Maximum inclination to carry food material with the belt conveyor is:-

- 40°
- 30°

- 10°
- 20°

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Stokes law is used to find out:-

- Drag coefficient
- Specific gravity
- Terminal velocity
- Surface tension

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Modern flour mills for wheat milling are:-

- Attrition Type
- Under Runner type
- Disc Type
- Roller type

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Kick's law states that:-

- The energy required for size of particle is proportional to ratio of initial size to final size.
- The energy required for size reduction is proportional either to change in dimension or change in surface area.
- The energy required for size reduction is proportional to change in surface area of the pieces of food.
- The energy required for size reduction is proportional to initial size.

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After addition of sugar, the gelatinization temperature of starch:-

- First increases then decreases
- Decreases
- Remains unchanged
- Increases

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Which is not a part of plant layout?

- Combination layout

- Location economics
- Product lay out
- Process layout

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After attaining terminal velocity, if the density of the particle is greater than density of the fluid:-

- The particle will neither move upward nor downward
- The particle will either move upward or downward
- Particle will move upward
- Particle will move downward

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The bulk density of rough rice approved by ASAE is:-

- 576Kg/m³
- 596Kg/m³
- 606Kg/m³
- 586Kg/m³

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Which of the following is the causative agent of fowl cholera?

- E.coli*
- V.cholera*
- P.multocida*
- S.pullorum*

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In a typical oil-seed crop, the matured seeds are enriched with:-

- Galactolipid
- Neutral lipid
- Phospholipid
- Sphingolipid

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Transmembrane regions of membrane proteins are usually more:-

- Basic

- Hydrophilic
- Acidic
- Hydrophobic

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IU is equal to:-

- 0.2 μ g
- 0.1 μ g
- 0.5 μ g
- 0.3 μ g

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Rheumatic fever is an example of:-

- neurodegenerative disorder
- immunodeficiency disease
- autoimmune disease
- type IV hypersensitive reaction

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In strecker degradation, during maillard reaction, the aminoacids usually react with:-

- Glucose
- α - dicarbonyl compound
- Schiffs base
- Fat

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Choose the option with two reducing sugars:-

- Lactose and Maltose
- Trehalose and Sucrose
- Maltose and Trehalose
- Lactose and Sucrose

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The ratio of diameter of the largest inscribing circle to the diameter of the smallest circumscribing circle is called:-

- Trigonometry
- Roundness
- Sphericity
- Shape factor

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Which is the strongest reducing agent in photosynthetic electron transfer reactions?

- P700*
- P700
- P680*
- Plastoquinone

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The specific gravity of skim milk is:-

- Higher than water
- Same as water
- Lower than water
- Same as whole milk

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What mechanism is responsible for movements of eukaryotic cilia and flagella?

- Dynein moving on microtubules
- Myosin moving on microfilaments
- Kinesin moving on microfilaments
- Dynein moving on microfilaments

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The angle of repose of wheat grain is:-

- 28-33
- 23-28
- 18-23
- 33-38

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P53 protein is associated with all of the following except:-

- Transcription
- Post transcriptional modification
- Programmed cell death
- Tumour suppression

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Which one of the following microscopic techniques can be used to study the contour of proteins?

- SEM
- Confocal microscopy
- TEM
- AFM

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The end products of glycolysis include ATP:-

- CO₂ and H₂O
- CO₂ and NADH
- NADH and pyruvate
- H₂O and pyruvate

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What is phytin?

- Phosphoric acid of sorbitol
- A polymer of phytic acid
- Calcium salt of phytic acid
- Phosphorous associated with mannitol