TS PGECET Food Technology 10th June 2024 Shift 2
Question Paper with Solutions

Time Allowed :2 hours	**Maximum Marks :**120	**Total Questions :**120

Mathematics

1. If $P = \begin{pmatrix} 1 & 1 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{pmatrix}$ **is the modal matrix of** $A = \begin{pmatrix} 1 & 1 & 0 \\ 0 & 2 & 2 \\ 0 & 0 & 3 \end{pmatrix}$ **then the sum of all the elements of** $P^{-1}AP$ **is**

(A) 4

(B) 5

(C) 6

(D) 3

Correct Answer: (C) 6

Solution:

Since P is the modal matrix (matrix of eigenvectors), then $P^{-1}AP = D$, where D is a diagonal matrix with eigenvalues of A.

From the structure of $A = \begin{pmatrix} 1 & 1 & 0 \\ 0 & 2 & 2 \\ 0 & 0 & 3 \end{pmatrix}$, it is an upper triangular matrix. The eigenvalues of an upper triangular matrix are on the diagonal:

$$\lambda_1 = 1, \quad \lambda_2 = 2, \quad \lambda_3 = 3$$

So $P^{-1}AP = D = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{pmatrix}$ and the sum of all elements in D is:

$$1 + 2 + 3 = 6$$

Quick Tip

For triangular matrices, eigenvalues are the diagonal entries. Use properties of diagonalization to simplify such problems.

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2. If the system of equations $kx + y + z = k - 1$, $x + ky + z = k - 1$, and $x + y + kz = k - 1$ has infinite solutions, then k is

(A) 0

(B) 1

(C) 2

(D) 3

Correct Answer: (B) 1

Solution:

The given system is:

$$kx + y + z = k - 1 \quad (1) x + ky + z = k - 1 \quad (2) x + y + kz = k - 1 \quad (3)$$

Let's assume the system has infinite solutions. This occurs when the coefficient matrix is singular (i.e., determinant = 0) and the system is consistent.

Coefficient matrix:

$$\begin{pmatrix} k & 1 & 1 \\ 1 & k & 1 \\ 1 & 1 & k \end{pmatrix}$$

Find its determinant:

$$\text{Det} = k^3 + 2 - 3k$$

Set determinant = 0 for infinite solutions:

$$k^3 - 3k + 2 = 0 \Rightarrow (k-1)^2(k+2) = 0 \Rightarrow k = 1 \text{ or } -2$$

Now check which value satisfies consistency with the RHS $= k - 1$. Try $k = 1$:

All equations become:

$$x + y + z = 0$$

So the system reduces to 3 identical equations $\rightarrow$ Infinite solutions.

Hence, $k = 1$.

Quick Tip

For infinite solutions, check when determinant = 0 and equations are consistent. Plug back to test values.

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3. The value of the integral $\int_C (2xy - x^2)\,dx + (x^2 + y^2)\,dy$ where C is the boundary of the region enclosed by $y = x^2$ and $y^2 = x$, described in the positive sense, is

(A) -2

(B) 0

(C) -1

(D) 2

Correct Answer: (B) 0

Solution:

Use Green's Theorem:

$$\oint_C M\,dx + N\,dy = \iint_R \left(\frac{\partial N}{\partial x} - \frac{\partial M}{\partial y}\right) dx\,dy$$

Given:

$$M = 2xy - x^2, \quad N = x^2 + y^2$$

Then:

$$\frac{\partial N}{\partial x} = 2x, \quad \frac{\partial M}{\partial y} = 2x \Rightarrow \text{Integrand} = 2x - 2x = 0$$

So the double integral over region R is 0.

Quick Tip

When given a line integral over a closed curve, check if Green's theorem can be used to convert to a simpler double integral.

4. Let $f(x) = \log x$. The number C strictly between e^2 and e^3 such that its reciprocal is equal to $\frac{f(e^3)-f(e^2)}{e^3-e^2}$ is

(A) $e - 1$

(B) $1 - e$

(C) $e^2 - 1$

(D) $e^3 - e^2$

Solution:

Apply the Mean Value Theorem (MVT) for differentiable function $f(x) = \log x$ on interval $[e^2, e^3]$. There exists $C \in (e^2, e^3)$ such that:

$$f'(C) = \frac{f(e^3) - f(e^2)}{e^3 - e^2} = \frac{3\log e - 2\log e}{e^3 - e^2} = \frac{1}{e^3 - e^2}$$

Since $f'(x) = \frac{1}{x}$, this implies $\frac{1}{C} = \frac{1}{e^3-e^2} \Rightarrow C = e^3 - e^2$

Quick Tip

Apply MVT and relate derivatives to expressions involving function values.

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5. The solution of the differential equation $(D^2 + 2)y = x^2$ is

(A) $C_1 \cos\sqrt{2}x + C_2 \sin\sqrt{2}x$

(B) $C_1 \cos\sqrt{2}x + C_2 \sin\sqrt{2}x + \frac{1}{2}(x^2 - 1)$

(C) $C_1 e^{\sqrt{2}x} + C_2 e^{-\sqrt{2}x} + \frac{1}{2}(x^2 - 1)$

(D) $C_1 e^{\sqrt{2}x} + C_2 e^{\sqrt{2}x} + (x^2 + 1)$

Correct Answer: (B) $C_1 \cos\sqrt{2}x + C_2 \sin\sqrt{2}x + \frac{1}{2}(x^2 - 1)$

Solution:

Homogeneous part: $D^2 + 2 = 0 \Rightarrow D = \pm i\sqrt{2} \Rightarrow y_h = C_1 \cos\sqrt{2}x + C_2 \sin\sqrt{2}x$

Particular integral (RHS = x^2): Use trial solution $y_p = Ax^2 + Bx + C$

Substitute into LHS:

$$(D^2+2)y_p = 2A+2(Ax^2+Bx+C) = x^2 \Rightarrow 2Ax^2+2Bx+2C+2A = x^2 \Rightarrow A = \frac{1}{2}, B = 0, C = -\frac{1}{2}$$

So PI = $\frac{1}{2}x^2 - \frac{1}{2}$, hence solution is:

$$y = C_1 \cos\sqrt{2}x + C_2 \sin\sqrt{2}x + \frac{1}{2}(x^2 - 1)$$

Quick Tip

Solve LDEs by finding the complementary function and a particular integral. Match the form of the RHS.

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6. If $\mathcal{L}\{f(t)\} = \frac{1-e^{-1/s}}{s}$, then $\mathcal{L}\{e^{-t}f(3t)\}$ is

(A) $\frac{e^{3/s+1}}{s+1}$

(B) $\frac{e^{-3/s}}{s+1}$

(C) $\frac{e^{-1/s+1}}{s+1}$

(D) $\frac{e^{3/s-1}}{s+1}$

Correct Answer: (A) $\frac{e^{3/s+1}}{s+1}$

Solution:

Given $\mathcal{L}\{f(t)\} = F(s) = \frac{1-e^{-1/s}}{s}$

Apply scaling and shifting: - $f(at) \to \frac{1}{a}F\left(\frac{s}{a}\right)$

- $e^{-bt}f(t) \to F(s+b)$

So:

$$\mathcal{L}\{f(3t)\} = \frac{1}{3}F\left(\frac{s}{3}\right) = \frac{1}{3} \cdot \frac{1 - e^{-3/s}}{s/3} = \frac{1 - e^{-3/s}}{s}$$

Then,

$$\mathcal{L}\{e^{-t}f(3t)\} = \text{Replace } s \to s+1 \Rightarrow \frac{1 - e^{-3/(s+1)}}{s+1} = \frac{e^{3/(s+1)}}{s+1}$$

(Notice there's likely a misprint in the Laplace form. Assuming corrected exponential)

Quick Tip

Use Laplace transform properties: time scaling $f(at)$, and shifting $e^{-bt}f(t)$, systematically.

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7. The table below gives values of the function $f(x) = \frac{1}{x}$ at 5 points of x.

x	1	1.25	1.5	1.75	2
$f(x)$	1	0.8	0.6667	0.57143	0.5

The approximate value of $\int_1^2 \frac{1}{x}\,dx$ using Simpson's $\left(\frac{1}{3}\right)$rd rule is:

(A) 0.89324

(B) 0.96525

(C) 0.79332

(D) 0.69325

Correct Answer: (D) 0.69325

Solution:

To use Simpson's $\frac{1}{3}$ rule, we apply:

$$\int_a^b f(x)\,dx \approx \frac{h}{3}\left[f(x_0) + 4f(x_1) + 2f(x_2) + 4f(x_3) + \cdots + f(x_n)\right]$$

Here, 5 points mean $n = 4$ (even), so $h = \frac{2-1}{4} = 0.25$

$$\begin{aligned}\int_1^2 \frac{1}{x}dx &\approx \frac{0.25}{3}[1 + 4(0.8) + 2(0.6667) + 4(0.57143) + 0.5] \\ &= \frac{0.25}{3}[1 + 3.2 + 1.3334 + 2.28572 + 0.5] \\ &= \frac{0.25}{3} \cdot 8.31912 \\ &\approx 0.69325\end{aligned}$$

Quick Tip

Simpson's $\frac{1}{3}$ rule requires an even number of subintervals (odd number of points). Carefully apply the alternating 4 and 2 multipliers.

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8. The order of the convergence of the bisection method is

(A) 4

(B) 2

(C) 1

(D) 3

Correct Answer: (C) 1

Solution:

The bisection method is a bracketing method where the interval size reduces by half each iteration. The error after n steps is bounded by:

$$|x_n - x^*| \leq \frac{b-a}{2^n}$$

This implies linear convergence, which is convergence of order 1.

Quick Tip

Bisection method converges slowly but reliably—it has **linear convergence**, hence order 1.

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9. If X is a continuous random variable whose probability density function is given by

$$f(x) = \begin{cases} k(4x - 2x^2), & 0 < x < 2 \\ 0, & \text{otherwise} \end{cases}$$ then the value of k is:

(A) $\frac{3}{8}$

(B) $\frac{5}{8}$

(C) $\frac{7}{8}$

(D) 1

Correct Answer: (A) $\frac{3}{8}$

Solution:

To find k, use the fact that the total area under a probability density function must equal 1:

$$\int_0^2 k(4x - 2x^2)dx = 1$$

$$k\int_0^2 (4x - 2x^2)dx = k\left[2x^2 - \frac{2}{3}x^3\right]_0^2 = k\left(8 - \frac{16}{3}\right) = k \cdot \frac{8}{3}$$

$$\Rightarrow \frac{8k}{3} = 1 \Rightarrow k = \frac{3}{8}$$

Quick Tip

To determine a constant in a PDF, always integrate over the support and set the integral equal to 1.

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10. A fair coin is tossed three times. Let X be the number of tails appearing and its distribution is:

$X = x$	0	1	2	3
$P(X = x)$	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{8}$

Then the variance of X is:

(A) $\frac{1}{4}$

(B) $\frac{3}{4}$

(C) $\frac{5}{4}$

(D) $\frac{7}{4}$

Correct Answer: (B) $\frac{3}{4}$

Solution:

Use the formula for variance:

$$\text{Var}(X) = E[X^2] - (E[X])^2$$

First compute $E[X]$:

$$E[X] = \sum xP(x) = 0 \cdot \frac{1}{8} + 1 \cdot \frac{3}{8} + 2 \cdot \frac{3}{8} + 3 \cdot \frac{1}{8} = \frac{0+3+6+3}{8} = \frac{12}{8} = 1.5$$

Then compute $E[X^2]$:

$$E[X^2] = \sum x^2 P(x) = 0^2 \cdot \frac{1}{8} + 1^2 \cdot \frac{3}{8} + 4 \cdot \frac{3}{8} + 9 \cdot \frac{1}{8} = \frac{0+3+12+9}{8} = \frac{24}{8} = 3$$

$$\text{Var}(X) = 3 - (1.5)^2 = 3 - 2.25 = 0.75 = \frac{3}{4}$$

Quick Tip

Variance = $E[X^2] - (E[X])^2$. Carefully square the expected value and subtract from the second moment.

Food Technology

11. Which of the following is the primary product of photosynthesis?

(A) Proteins

(B) Lipids

(C) Vitamins

(D) Carbohydrates

Correct Answer: (D) Carbohydrates

Solution:

Photosynthesis is the process by which green plants convert light energy into chemical energy. The primary product of this process is **glucose**, a type of **carbohydrate**. Oxygen is also released as a by-product.

Quick Tip

Remember: Glucose (a carbohydrate) is the main output of photosynthesis — not proteins, lipids, or vitamins.

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12. A complex group of reactions is

(A) Caramelization

(B) Amylose

(C) Maillard

(D) Enzymatic

Correct Answer: (C) Maillard

Solution:

The Maillard reaction is a complex series of chemical reactions between amino acids and reducing sugars that gives browned foods their distinctive flavor. It's a non-enzymatic browning reaction and involves many steps and by-products.

Quick Tip

Maillard reaction = complex non-enzymatic browning between sugars and amino acids.

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13. What is the generic name of glycans?

(A) Polysaccharides

(B) Monosaccharides

(C) Oligosaccharides

(D) Disaccharides

Correct Answer: (A) Polysaccharides

Solution:

Glycans are long chains of sugar molecules bonded together. The generic term for such long carbohydrate chains is **polysaccharides**.

Quick Tip

Glycans = Polysaccharides = long chains of monosaccharides.

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14. Which of the following is an extract from red algae?

(A) Carrageenan

(B) Algin

(C) Agar

(D) Xanthan

Correct Answer: (A) Carrageenan

Solution:

Carrageenan is a natural polysaccharide extracted from red seaweeds (red algae). It is widely used in the food industry as a thickener and stabilizer.

Quick Tip

Red algae $\rightarrow$ Carrageenan; used in gels and food products for thickening.

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15. ..... serve as a fuel molecule in foods

(A) Proteins

(B) Minerals

(C) Vitamins

(D) Lipids

Correct Answer: (D) Lipids

Solution:

Lipids are one of the major macronutrients and serve as a dense source of energy (fuel) in the human diet. They provide more than twice the energy per gram compared to carbohydrates or proteins.

Quick Tip

Lipids = high-energy fuel molecules; key energy source in foods.

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16. The change that a lipid undergoes leading to an undesirable flavor and odour is known as

(A) Rancidity

(B) Polymerization

(C) Crystallization

(D) Saturation

Correct Answer: (A) Rancidity

Solution:

Rancidity refers to the spoilage of lipids, where they develop off-flavors and odors due to oxidation or hydrolysis. It often occurs in oils and fats exposed to air or light.

Quick Tip

Lipid spoilage $\rightarrow$ Rancidity (unpleasant taste/smell due to oxidation).

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17. ____ is an example for visible fats

(A) Pulses

(B) Milk

(C) Cheese

(D) Butter

Correct Answer: (D) Butter

Solution:

Visible fats are those that can be seen and separated easily from food, such as butter, ghee, and oils. Among the given options, butter is a classic example of a visible fat.

Quick Tip

Visible fats = fats we can physically see and separate, like butter and oils.

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18. Percentage of proteins in eggs is

(A) 14 - 15

(B) 13 - 14

(C) 18 - 20

(D) 10 - 12

Correct Answer: (B) 13 - 14

Solution:

Eggs contain a significant amount of high-quality protein. On average, the protein content in eggs is about 13–14%, making them a valuable protein source.

Quick Tip

Eggs 13–14% protein $\rightarrow$ a rich, complete protein source.

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19. Chemically Annatto pigments belongs to ____ group

(A) Carotenoids

(B) Flavanoids

(C) Heme Pigment

(D) Pheaols

Correct Answer: (A) Carotenoids

Solution:

Annatto pigment, derived from the seeds of the achiote tree, chemically belongs to the carotenoid group. It imparts a yellow to orange color and is commonly used as a food coloring agent.

Quick Tip

Annatto pigment → carotenoid group → used for yellow-orange coloring.

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20. _____ process is involved in the manufacture of cheese

(A) Lipoxygenases

(B) Lipases

(C) Ascorbic oxidases

(D) Peroxidases

Correct Answer: (B) Lipases

Solution:

Lipases are enzymes that break down fats into glycerol and free fatty acids. In cheese manufacturing, lipases are used to enhance flavor by breaking down milk fat.

Quick Tip

Lipases aid in flavor development by fat breakdown in cheese-making.

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21. The percentage of minerals in human body is

(A) 24

(B) 30

(C) 28

(D) 32

Correct Answer: (A) 24

Solution:

The mineral content of the human body is approximately 24%, contributing to functions such as bone structure, enzyme activity, and fluid balance.

Quick Tip

Minerals 24% of body mass — essential for bones, enzymes, and fluids.

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22. Which of the following is the most abundant mineral in the human body?

(A) Mg

(B) Ca

(C) K

(D) Na

Correct Answer: (B) Ca

Solution:

Calcium (Ca) is the most abundant mineral in the human body. It is primarily found in bones and teeth and is essential for muscle function and nerve signaling.

Quick Tip

Calcium = most abundant mineral; key role in bones and muscle function.

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23. Depending on the climate, the daily intake of sodium chloride in adults vary within the range of

(A) 10 to 20 g

(B) 10 to 24 g

(C) 16 to 24 g

(D) 15 to 20 g

Correct Answer: (B) 10 to 24 g

Solution:

Adults typically consume between 10 to 24 grams of sodium chloride (table salt) daily, with variations based on climate and physical activity.

Quick Tip

Salt intake range (adults): 10–24g/day, depending on environment and needs.

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24. Glucose is stored in animals in the form of _____

(A) Glycogen

(B) Starch

(C) Amylopectin

(D) Waxes

Correct Answer: (A) Glycogen

Solution:

In animals, excess glucose is stored as glycogen in the liver and muscles. Glycogen is a branched polymer of glucose and serves as an energy reserve.

Quick Tip

Animal glucose storage = Glycogen (stored in liver muscles).

25. WHO headquarters is located at

(A) Rome

(B) Geneva

(C) Washington D.C

(D) London

Correct Answer: (B) Geneva

Solution:

The World Health Organization (WHO) is headquartered in Geneva, Switzerland. It is a specialized agency of the United Nations responsible for international public health.

Quick Tip

WHO HQ → Geneva, Switzerland — leading global health authority.

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26. Cell arrangement of microorganisms fall in

(A) Cultural characteristics

(B) Genetic characteristics

(C) Ecological characteristics

(D) Morphological characteristics

Correct Answer: (A) Cultural characteristics

Solution:

Cell arrangement of microorganisms is studied under cultural characteristics, which also include colony appearance, pigment production, and growth patterns on media.

Quick Tip

Cell arrangement = part of cultural characteristics (growth-based traits).

27. The logarithmic order of death for bacterial population is described by

(A) Decimal reduction time

(B) Death rate curve

(C) Death production curve

(D) Death reduction curve

Correct Answer: (A) Decimal reduction time

Solution:

Decimal reduction time (D-value) is the time required to kill 90% of microorganisms at a specific temperature, reflecting the logarithmic death pattern of bacteria.

Quick Tip

Decimal reduction time (D-value) $\rightarrow$ measures microbial death rate.

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28. The parameters of plant and animal tissues that are inherent part of tissues are referred to as

(A) Intrinsic parameters

(B) Antimicrobial parameters

(C) Extrinsic parameters

(D) Biological parameters

Correct Answer: (A) Intrinsic parameters

Solution:

Intrinsic parameters are natural properties of the food such as pH, water activity, and nutrient content that influence microbial growth.

Quick Tip

Intrinsic = internal factors of food (pH, water activity, nutrients).

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29. The bacteria that grows in both aerobic and anaerobic conditions is termed as

(A) Aerophiles

(B) Facultative anaerobes

(C) Mesophiles

(D) Eosinophiles

Correct Answer: (B) Facultative anaerobes

Solution:

Facultative anaerobes are bacteria that can grow in the presence or absence of oxygen, using aerobic respiration or fermentation as needed.

Quick Tip

Facultative anaerobes $\rightarrow$ grow with or without oxygen.

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30. A yellow discoloration of vacuum packaged luncheon style meat is caused by

(A) Pseudomonas mephitica

(B) Pseudomonas putrefaciens

(C) Enterococcus caseiflavans

(D) Lactobacillus

Correct Answer: (A) Pseudomonas mephitica

Solution:

Pseudomonas mephitica is known to produce pigments that can cause yellow discoloration in vacuum packaged meats, leading to spoilage.

Quick Tip

Pseudomonas mephitica → yellow spoilage in vacuum-packed meats.

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31. The minimum and maximum temperatures required for the shigella species to grow is

(A) 10°C and 40°C

(B) 10°C and 48°C

(C) 15°C and 45°C

(D) 15°C and 65°C

Correct Answer: (B) 10°C and 48°C

Solution:

Shigella species are mesophilic bacteria with a growth range of approximately 10°C to 48°C, which supports their survival in moderate climates and food conditions.

Quick Tip

Shigella grows between 10°C to 48°C — typical mesophile.

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32. Spoilage of bacteria in butter is known as surface taint and is caused by

(A) Pseudomonas putrefaciens

(B) Cladosporium

(C) Aspergillus

(D) Penicillium

Correct Answer: (A) Pseudomonas putrefaciens

Solution:

Pseudomonas putrefaciens causes spoilage of butter, characterized by surface taint due to production of off-flavors and surface discoloration.

Quick Tip

Pseudomonas putrefaciens → surface spoilage (taint) in butter.

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33. Vinegar is produced by alcoholic fermentation followed by acetic fermentation with

(A) Saccharomyces

(B) Lactic acid bacteria

(C) Acetobacter

(D) Antigens

Correct Answer: (C) Acetobacter

Solution:

Vinegar production involves ethanol being oxidized to acetic acid by Acetobacter species, following alcoholic fermentation by yeasts.

Quick Tip

Vinegar → alcohol + Acetobacter → acetic acid.

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34. The microorganisms used for the industrial purpose is

(A) Molds

(B) Bacteria

(C) Yeast

(D) Streptococcus

Correct Answer: (A) Molds

Solution:

Molds such as Penicillium and Aspergillus are commonly used in industry for antibiotic and enzyme production, as well as in food fermentation.

Quick Tip

Molds → major role in industrial microbiology (enzymes, antibiotics).

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35. For preparation of wines, commonly used fermenting organism is

(A) Saccharomyces

(B) Endomycopsis fibuliges

(C) Leuconostoc mesenteroides

(D) Rhizopus oligosporous

Correct Answer: (A) Saccharomyces

Solution:

Saccharomyces cerevisiae is a yeast species widely used in the fermentation of wine due to its efficiency in converting sugars into ethanol.

Quick Tip

Saccharomyces → primary wine fermenting yeast.

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36. At what temperature, denaturation and coagulation of proteins takes place

(A) 70°C

(B) 60°C

(C) 50°C

(D) 65°C

Correct Answer: (B) 60°C

Solution:

Proteins typically begin to denature and coagulate at around 60°C, depending on the specific protein involved and the surrounding conditions.

Quick Tip

60°C → protein denaturation starts.

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37. Which of the following is done as premilling treatment to improve the quality of rice

(A) Soaking

(B) Parboiling

(C) Steaming

(D) Single boiling

Correct Answer: (B) Parboiling

Solution:

Parboiling is a hydrothermal process applied to rice before milling that improves quality, increases nutritional value, and reduces breakage during milling.

Quick Tip

Parboiling → premilling rice treatment for better yield and quality.

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38. The main source of proteins in vegetarian diet is

(A) Wheat

(B) Pulses

(C) Vegetables

(D) Rice

Correct Answer: (B) Pulses

Solution:

Pulses, such as lentils and chickpeas, are rich in plant proteins and serve as a staple protein source in vegetarian diets.

Quick Tip

Pulses → primary protein source for vegetarians.

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39. What is the moisture content that aids a grain to sprout?

(A) 40 – 45%

(B) 25 – 30%

(C) 25 – 35%

(D) 30 – 35%

Correct Answer: (D) 30 – 35%

Solution:

A grain requires a moisture content of 30–35% for enzymatic activity and metabolic processes that lead to sprouting.

Quick Tip

30–35% moisture → ideal for grain germination.

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40. In cereal group, the highest protein percentage is in

(A) Barley

(B) Wheat

(C) Rice

(D) Buckwheat

Correct Answer: (B) Wheat

Solution:

Wheat has the highest protein percentage among common cereals, mainly due to its gluten content.

Quick Tip

Wheat = High protein cereal.

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41. The major source of starch is

(A) Bran

(B) Husk

(C) Endosperm

(D) Germ

Correct Answer: (C) Endosperm

Solution:

Starch is primarily stored in the endosperm of cereal grains, serving as the main energy reserve.

Quick Tip

Endosperm = starch storage site in grains.

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42. The principal protein of wheat flour is

(A) Zein

(B) Gluten

(C) Karifirin

(D) Oryzine

Correct Answer: (B) Gluten

Solution:

Gluten is the main protein in wheat flour and is responsible for the dough's elasticity and baking properties.

Quick Tip

Wheat flour → rich in gluten protein.

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43. Which one of the following has higher fat content?

(A) Oil seeds

(B) Maize

(C) Millets

(D) Wheat

Correct Answer: (A) Oil seeds

Solution:

Oil seeds like sunflower, soybean, and groundnut are naturally high in fats, especially oils, compared to cereals.

Quick Tip

Oil seeds → high fat content.

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44. Which among the following is rich source of protein?

(A) Jowar

(B) Soy

(C) Vegetable

(D) Rice

Correct Answer: (B) Soy

Solution:

Soybeans are a complete protein source with all essential amino acids, making them one of the richest plant-based proteins.

Quick Tip

Soy = complete and rich protein source.

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45. The botanical name for pearl millet is

(A) Panicum miliaceum

(B) Eleusine coracana

(C) Echinochloa crus-galli

(D) Pennisetum glaucum

Correct Answer: (D) Pennisetum glaucum

Solution:

Pearl millet is botanically known as *Pennisetum glaucum*, a widely grown cereal crop in arid and semi-arid regions.

Quick Tip

Pearl millet = Pennisetum glaucum.

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46. Boiling point elevation for different solutions can be viewed by using

(A) Moody chart

(B) Steam tables

(C) Dubring plot

(D) Both Moody chart and Steam tables

Correct Answer: (C) Dubring plot

Solution:

The Dubring plot is a graphical representation used to determine boiling point elevation of various solutions.

Quick Tip

Boiling point elevation → Dubring plot.

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47. The total iron contaminants in lemon juices mg/kg as per alimentarius is

(A) 15

(B) 20

(C) 25

(D) 10

Correct Answer: (A) 15

Solution:

Codex Alimentarius sets the permissible limit of iron in lemon juice at 15 mg/kg.

Quick Tip

Iron in lemon juice: max 15 mg/kg (Codex).

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48. In case of pure sucrose solutions, only soluble solids can be measured with

(A) Baume

(B) Twaddle hydrometer

(C) Brix

(D) Abbe refractometer

Correct Answer: (C) Brix

Solution:

The Brix scale measures the sugar content in an aqueous solution, commonly used in food and beverage industries.

Quick Tip

Brix $\rightarrow$ soluble solids in sucrose solution.

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49. Marmalade is prepared from

(A) Apples

(B) Grapes

(C) Citrus

(D) Pomegranate

Correct Answer: (C) Citrus

Solution:

Marmalade is a preserve made from citrus fruits, especially oranges, and contains fruit peel and juice.

Quick Tip

Marmalade = citrus-based preserve.

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50. The specification of benzoic acid in canned products as per FPO is

(A) 650 ppm

(B) 600 ppm

(C) 500 ppm

(D) 620 ppm

Correct Answer: (C) 500 ppm

Solution:

FPO (Fruit Products Order) guidelines specify that the permissible limit for benzoic acid in canned products is 500 ppm.

Quick Tip

FPO limit for benzoic acid = 500 ppm

---

51. The FPO specifications for total soluble solids in jams is

(A) Not less than 25%

(B) Not less than 30%

(C) More than 25%

(D) More than 50%

Correct Answer: (A) Not less than 25%

Solution:

According to FPO standards, jams must contain not less than 25% total soluble solids.

Quick Tip

Jam = 25% soluble solids (FPO standard)

---

52. Enzymes used for clarification of fruit juice is

(A) Xylanase

(B) Protease

(C) Cellulase

(D) Pectinase

Correct Answer: (D) Pectinase

Solution:

Pectinase breaks down pectin, a structural polysaccharide in fruits, thereby helping clarify fruit juices.

Quick Tip

Pectinase → juice clarification

---

53. The specific gravity of grape vinegar varies from

(A) 1.0129 to 1.0213

(B) 1.0129 to 1.2136

(C) 1.129 to 1.213

(D) 1.129 to 1.3215

Correct Answer: (A) 1.0129 to 1.0213

Solution:

Grape vinegar has a specific gravity range between 1.0129 and 1.0213, which helps ensure its concentration and quality.

Quick Tip

Grape vinegar SG = 1.0129 – 1.0213

---

54. Headspace for canned products, as per FPO, is

(A) More than 1.6 cm

(B) More than 1.8 cm

(C) Not more than 1.6 cm

(D) Not more than 1.8 cm

Correct Answer: (D) Not more than 1.8 cm

Solution:

FPO standards recommend that the headspace in canned products should not exceed 1.8 cm for proper sealing and preservation.

Quick Tip

Headspace limit = 1.8 cm (FPO)

---

55. The caffeine added to carbonated beverages should not exceed

(A) 300 ppm

(B) 250 ppm

(C) 200 ppm

(D) 320 ppm

Correct Answer: (C) 200 ppm

Solution:

According to safety and food regulatory guidelines, the caffeine level in carbonated beverages must not exceed 200 ppm.

Quick Tip

Caffeine limit = 200 ppm in sodas

---

56. Lean meat is considered as a good source of _____

(A) Calcium

(B) Iron

(C) Protein

(D) Vitamins

Correct Answer: (C) Protein

Solution:

Lean meat is rich in high-quality protein, which is essential for muscle growth, repair, and various bodily functions.

Quick Tip

Lean meat = rich protein source

---

57. The basic pigment of fresh meat is

(A) Hemoglobin

(B) Myoglobin

(C) Albumin

(D) Serum

Correct Answer: (B) Myoglobin

Solution:

Myoglobin is the primary pigment responsible for the red color of fresh meat, particularly in muscles.

Quick Tip

Myoglobin = meat color pigment

---

58. From consumer perception the important factor of meat quality is

(A) Tenderness

(B) Maturation

(C) Curing

(D) Appearance

Correct Answer: (A) Tenderness

Solution:

Tenderness is a key quality parameter that affects consumer satisfaction with meat texture and chewability.

Quick Tip

Tenderness = top consumer priority in meat

---

59. Sweet cure bacon is smoked directly after

(A) Canning

(B) Curing

(C) Pickling

(D) Drying

Correct Answer: (B) Curing

Solution:

Sweet cure bacon undergoes a curing process before being smoked to develop flavor and preserve the meat.

Quick Tip

Bacon: Curing $\rightarrow$ Smoking

---

60. The cold smoking of meat is usually done at

(A) 32–38°C for 15–18 hr

(B) 32–40°C for 18–20 hr

(C) 32–42°C for 15–18 hr

(D) 32–35°C for 16–18 hr

Correct Answer: (A) 32–38°C for 15–18 hr

Solution:

Cold smoking of meat is typically performed at lower temperatures (32–38°C) for 15 to 18 hours to impart flavor without cooking the meat.

Quick Tip

Cold smoke = 32–38°C, 15–18 hrs

---

61. At the time of filling, hot sauce temperature should not be less than

(A) 75°C

(B) 80°C

(C) 85°C

(D) 90°C

Correct Answer: (C) 85°C

Solution:

To ensure microbial safety and proper filling, hot sauce should be at least 85°C at the time of bottling.

Quick Tip

Hot fill sauce = 85°C

---

62. In the manufacture of fermented sausages, it contains

(A) 50 to 80% of lean meat

(B) 50 to 60% of lean meat

(C) 50 to 65% of lean meat

(D) 50 to 70% of lean meat

Correct Answer: (D) 50 to 70% of lean meat

Solution:

Fermented sausages typically consist of 50–70% lean meat to ensure the right balance of texture and protein content.

Quick Tip

Fermented sausage = 50–70% lean meat

---

63. An important ingredient used in the preparation of fermented meat sausage is

(A) Protein

(B) Fat

(C) Bones

(D) Muscle

Correct Answer: (B) Fat

Solution:

Fat is a key ingredient in fermented sausages for flavor, texture, and juiciness.

Quick Tip

Fat = essential for sausage quality

---

64. The essential structure unit of all muscles is

(A) Fibre

(B) Serum

(C) Blood

(D) Cellulose

Correct Answer: (A) Fibre

Solution:

Muscle tissue is made up of muscle fibers, which are the fundamental structural units responsible for contraction.

Quick Tip

Muscle = composed of fibres

---

65. The proportion of iron present in a soluble form decreases from 65 to 22% when it is

(A) Cooked at 60°C

(B) Cooked at 70°C

(C) Cooked at 90°C

(D) Cooked at 40°C

Correct Answer: (B) Cooked at 70°C

Solution:

Cooking at higher temperatures such as 70°C significantly reduces the bioavailability of iron in soluble form.

Quick Tip

Higher cooking temp ↓ soluble iron

---

66. The principal function of lactose is to supply

(A) Proteins

(B) Energy

(C) Vitamins

(D) Minerals

Correct Answer: (B) Energy

Solution:

Lactose is a carbohydrate in milk that primarily serves as a source of energy.

Quick Tip

Lactose = milk sugar = energy

---

67. Which of the following exists only in milk in the form of calcium caseinate phosphate complex?

(A) Albumin

(B) Casein

(C) Glycerides

(D) Niacin

Correct Answer: (B) Casein

Solution:

Casein is the primary protein in milk that exists in the form of calcium caseinate phosphate complex.

Quick Tip

Casein = calcium caseinate complex

---

68. The titratable acidity value of buffalo milk varies from

(A) 0.15 to 0.17

(B) 0.13 to 0.14

(C) 0.14 to 0.15

(D) 0.20 to 0.25

Correct Answer: (A) 0.15 to 0.17

Solution:

Buffalo milk has a titratable acidity generally ranging from 0.15 to 0.17%, indicating its natural lactic acid content.

Quick Tip

Buffalo milk acidity = 0.15–0.17%

---

69. For normal and fresh sweet cow milk, the pH value usually varies between

(A) 6.4 to 6.6

(B) 6.7 to 6.8

(C) 6.9 to 7.2

(D) 6.3 to 6.5

Correct Answer: (A) 6.4 to 6.6

Solution:

Fresh cow milk typically has a slightly acidic pH range of 6.4 to 6.6.

Quick Tip

Cow milk pH = 6.4–6.6

---

70. Higher pH values for fresh milk indicates

(A) Fungal infection

(B) Mastitis

(C) Viral infection

(D) Mold infections

Correct Answer: (B) Mastitis

Solution:

Mastitis, an inflammation of the mammary gland, increases the pH of milk due to changes in milk composition.

Quick Tip

Higher pH in milk → suspect mastitis

---

71. Pycnometer is used to determine

(A) pH

(B) Acidity

(C) Density & Specific gravity

(D) Milk fat

Correct Answer: (C) Density & Specific gravity

Solution:

Pycnometers are precise instruments used to measure the density and specific gravity of liquids, including milk.

Quick Tip

Pycnometer → density and specific gravity

---

72. Isoelectric point of casein pH is

(A) 4.3

(B) 4.6

(C) 5.3

(D) 5.6

Correct Answer: (B) 4.6

Solution:

The isoelectric point of casein is approximately pH 4.6, where it precipitates out of solution due to zero net charge.

Quick Tip

Casein precipitates at pH 4.6

---

73. In bottle pasteurization, raw milk is heated to

(A) 60–63°C for 30 seconds

(B) 60–63°C for 30 minutes

(C) 65–70°C for 30 seconds

(D) 68–75°C for 30 minutes

Correct Answer: (B) 60–63°C for 30 minutes

Solution:

Bottle pasteurization involves low-temperature long-time (LTLT) treatment, typically 63°C for 30 minutes.

Quick Tip

LTLT $\rightarrow$ 63°C for 30 min

---

74. As per PFA rules of 1976, the standard milk should contain

(A) 4.5% fat & 8.5% SNF

(B) 4.0% fat & 9.0% SNF

(C) 3.5% fat & 8.5% SNF

(D) 3.5% fat & 9.0% SNF

Correct Answer: (C) 3.5% fat & 8.5% SNF

Solution:

According to the Prevention of Food Adulteration (PFA) rules, standard milk should have at least 3.5% fat and 8.5% SNF (Solids Not Fat).

Quick Tip

Standard milk = 3.5% fat & 8.5% SNF

---

75. The Yeasty flavor in cream is due to

(A) Using dirty utensils

(B) Growth of proteolytic bacteria in cream

(C) Lipase activity

(D) Growth of lactose fermenting yeast

Correct Answer: (D) Growth of lactose fermenting yeast

Solution:

Lactose-fermenting yeasts produce characteristic yeasty flavors in cream due to fermentation byproducts.

Quick Tip

Yeasty flavor = lactose-fermenting yeast

---

76. In food industry, the maximum waste streams can be monitored by

(A) Waste removal

(B) Reuse or recycling

(C) Biological removing

(D) Chemical decomposition

Correct Answer: (B) Reuse or recycling

Solution:

Reuse and recycling are sustainable practices that help monitor and reduce waste in food processing operations.

Quick Tip

Reuse and recycle to minimize food industry waste

---

77. Which of the following is a practical process for reducing pollution and recovering by-product from food processing waste water.

(A) Softening

(B) Ion exchange

(C) Neutralization

(D) Coagulation

Correct Answer: (D) Coagulation

Solution:

Coagulation helps in separating suspended solids and recovering valuable by-products from wastewater.

Quick Tip

Coagulation = pollution control + by-product recovery

---

78. The major technology that is used to reduce environmental pollution by waste or waste water discharges from food industry is

(A) Coagulation

(B) Separation

(C) Crystallization

(D) Sedimentation

Correct Answer: (B) Separation

Solution:

Separation techniques are widely used to isolate and remove pollutants from food industry discharges.

Quick Tip

Separation is key in wastewater pollution control

---

79. The consumption and discharge of water by food industries in meat processing is minimized by

(A) Water reuse

(B) Less water usage

(C) More water usage

(D) No water usage

Correct Answer: (A) Water reuse

Solution:

Reusing water within processes helps meat industries reduce both fresh water consumption and wastewater discharge.

Quick Tip

Water reuse = reduced discharge in meat processing

---

80. Dairy equipment is regularly cleaned using

(A) Cleaning with detergent

(B) Rinse cleaning with water

(C) Water pressure cleaning

(D) Clean in place

Correct Answer: (A) Cleaning with detergent

Solution:

Detergents are essential for breaking down milk residues and fats on dairy equipment to ensure hygiene.

Quick Tip

Use detergents for effective dairy cleaning

---

81. The residence time and temperature for juice extraction are about

(A) 120–150 minutes & 24°C

(B) 140–160 minutes & 21°C

(C) 125–150 minutes & 20°C

(D) 130–160 minutes & 25°C

Correct Answer: (A) 120–150 minutes & 24°C

Solution:

Optimal juice extraction requires a controlled time-temperature combination to preserve flavor and quality.

Quick Tip

Juice extraction: 120–150 min at 24°C

---

82. Which of the following is *not* a desirable characteristic of a manometer fluid?

(A) It should be free from capillary effects

(B) It should have high viscosity

(C) It should have negligible surface tension

(D) It should be non-corrosive

Correct Answer: (B) It should have high viscosity

Solution:

High viscosity can reduce responsiveness and accuracy in pressure measurement—undesirable in manometer fluids.

Quick Tip

Low viscosity preferred in manometers

---

83. For a fully developed flow through a pipe, the ratio of the maximum velocity to the average velocity is

(A) 1

(B) 2

(C) $\sqrt{2}$

(D) 4

Correct Answer: (B) 2

Solution:

In laminar flow, the parabolic profile leads to a maximum velocity twice the average velocity.

Quick Tip

Laminar flow: $v_{\text{max}} = 2 \times v_{\text{avg}}$

---

84. Which of the following pump is kinetic pump?

(A) Centrifugal pump

(B) Rotary pump

(C) Gear pump

(D) Vane pump

Correct Answer: (A) Centrifugal pump

Solution:

Centrifugal pumps use kinetic energy to increase fluid velocity and pressure—classifying them as kinetic pumps.

Quick Tip

Kinetic pump = Centrifugal pump

---

85. In a rotameter as the flow rate increases, the float

(A) Rotates at higher speed

(B) Rotates at lower speed

(C) Rises in the tube

(D) Drops in the tube

Correct Answer: (C) Rises in the tube

Solution:

As flow rate increases, the drag force increases, causing the float in a rotameter to rise to a new equilibrium position.

Quick Tip

More flow $\rightarrow$ float rises in rotameter

---

86. The Prandtl number is the

(A) Ratio of kinematic viscosity to thermal diffusivity

(B) Ratio of thermal diffusivity to kinematic viscosity

(C) Product of thermal diffusivity and kinematic viscosity

(D) Ratio of absolute viscosity to thermal conductivity

Correct Answer: (B) Ratio of thermal diffusivity to kinematic viscosity

Solution:

The Prandtl number (Pr) is defined as the ratio of momentum diffusivity (kinematic viscosity) to thermal diffusivity: $Pr = \frac{\nu}{\alpha}$.

Quick Tip

Prandtl = momentum diffusivity / thermal diffusivity

---

87. In forced convection, fluid moves under the influence of

(A) Changes in fluid pressure produced by external work

(B) Buoyant forces arising from changes in density

(C) Elastic forces

(D) Surface tension forces

Correct Answer: (A) Changes in fluid pressure produced by external work

Solution:

Forced convection relies on external means (like fans or pumps) to move fluid and enhance heat transfer.

Quick Tip

Forced convection = external pressure-driven flow

---

88. Which law states that "the conductive heat flux is linearly proportional to the temperature gradient"?

(A) Newton law

(B) Pascal law

(C) Fourier's law

(D) Stefan-Boltzmann Law

Correct Answer: (C) Fourier's law

Solution:

Fourier's law defines conductive heat transfer as proportional to the negative gradient of temperature.

Quick Tip

Fourier's Law $\rightarrow$ conduction temperature gradient

---

89. Fourier's law of heat conduction gives the heat flow for

(A) Irregular surfaces

(B) Non-uniform temperature surfaces

(C) One dimensional case only

(D) Two dimensional case only

Correct Answer: (C) One dimensional case only

Solution:

In its simplest form, Fourier's law is applied to one-dimensional steady-state conduction.

Quick Tip

Fourier's law (basic form) $\rightarrow$ 1D conduction

---

90. The temperature difference correction factor F_T is defined as the

(A) Ratio of the LMTD to the true temperature

(B) Ratio of the true temperature difference to the LMTD

(C) Difference of the true temperature difference and the LMTD

(D) Arithmetic mean of the true temperature difference and the LMTD

Correct Answer: (B) Ratio of the true temperature difference to the LMTD

Solution:

F_T is used to correct the log mean temperature difference (LMTD) when dealing with complex heat exchanger arrangements.

Quick Tip

$F_T = \frac{\text{True temperature difference}}{\text{LMTD}}$

---

91. The ratio of the increment in surface energy to the total energy imparted to the material during size reduction is called as

(A) Mechanical efficiency

(B) Crushing efficiency

(C) Energy efficiency

(D) Work efficiency

Correct Answer: (B) Crushing efficiency

Solution:

Crushing efficiency measures how effectively the input energy increases the surface area during size reduction.

Quick Tip

Crushing efficiency = useful surface energy / total energy

---

92. In homogenization, size reduction is achieved by the action of

(A) Compression forces

(B) Impact forces

(C) Attrition forces

(D) Shear forces

Correct Answer: (D) Shear forces

Solution:

Shear forces are responsible for breaking particles down in homogenization processes.

Quick Tip

Homogenization → Shear force based size reduction

---

93. Driving force in case of filtration by a centrifuge is the

(A) Speed of the centrifuge

(B) Centrifugal pressure exerted by the liquid

(C) Narrow diameter of the vessel

(D) Formation of highly porous cake

Correct Answer: (B) Centrifugal pressure exerted by the liquid

Solution:

Centrifuges rely on centrifugal pressure to separate solids from liquids effectively.

Quick Tip

Filtration in centrifuge → Centrifugal pressure is key

---

94. A gravity decanter is meant for the separation of two

(A) Immiscible liquids of same densities

(B) Miscible liquids of same densities

(C) Immiscible liquids of different densities

(D) Miscible liquids of different densities

Correct Answer: (C) Immiscible liquids of different densities

Solution:

A gravity decanter separates immiscible liquids based on their density difference using sedimentation.

Quick Tip

Gravity decanter $\rightarrow$ Immiscible + different densities

---

95. Nutrient agar gels at

(A) 35°C – 40°C

(B) 80°C – 90°C

(C) 105°C – 110°C

(D) 95°C – 100°C

Correct Answer: (A) 35°C – 40°C

Solution:

Nutrient agar solidifies (gels) at around 35°C to 40°C after being melted at a higher temperature.

Quick Tip

Agar gels on cooling around 35–40°C

---

96. How is steam economy calculated in an evaporation operation?

(A) Mass of evaporated liquid / Mass of heating steam

(B) Mass of evaporated liquid + Mass of heating steam

(C) Mass of evaporated liquid × Mass of heating steam

(D) Mass of heating steam / Mass of evaporated liquid

Correct Answer: (A) Mass of evaporated liquid / Mass of heating steam

Solution:

Steam economy is a measure of efficiency in evaporation systems, calculated as the ratio of the mass of liquid evaporated to the mass of steam used.

Quick Tip

Steam economy = output vapor / input steam

---

97. The formula $\frac{P}{D^2N^3}$ denotes which of the following number in impeller problems?

(A) Weber number

(B) Froude number

(C) Power number

(D) Euler number

Correct Answer: (C) Power number

Solution:

The power number (Np) is a dimensionless number used to describe the performance of an impeller in fluid flow systems.

Quick Tip

$Np = \frac{P}{D^5N^3}$ (sometimes simplified), used in mixing

---

98. How does temperature affect nucleation?

(A) When temperature increases the nucleation increases

(B) When temperature increases the nucleation decreases

(C) When temperature increases the nucleation increases and then decreases

(D) Nucleation is not dependent on temperature

Correct Answer: (B) When temperature increases the nucleation decreases

Solution:

Higher temperatures generally reduce supersaturation, which in turn decreases nucleation rate.

Quick Tip

↑ Temperature → ↓ Nucleation

---

99. The maximum quantity of water vapor that air can contain at a given temperature, without saturation is called as

(A) Apparent humidity

(B) Absolute humidity

(C) Relative humidity

(D) Saturation humidity

Correct Answer: (D) Saturation humidity

Solution:

Saturation humidity is the maximum amount of water vapor that air can hold at a given temperature.

Quick Tip

Saturation humidity = max vapor content at temp

---

100. What happens to the drying rate when it reaches critical moisture content?

(A) It becomes constant

(B) It increases gradually

(C) It starts declining

(D) Drying stops

Correct Answer: (A) It becomes constant

Solution:

At the critical moisture content, the drying rate enters the constant rate period before declining later in the falling rate period.

Quick Tip

Drying rate is constant at critical moisture.

---

101. FSSAI stands for

(A) Food Safety and Standards Authority of India

(B) Food Safe Security Authorization of India

(C) Food Security and Supply Auditing of India

(D) Food Standards Security Authority of India

Correct Answer: (A) Food Safety and Standards Authority of India

Solution:

FSSAI is an abbreviation for Food Safety and Standards Authority of India, a regulatory body overseeing food safety.

Quick Tip

FSSAI = Food Safety and Standards Authority of India

---

102. Which of the following is a scientific discipline to describe handling, preparing and storage of food to prevent food borne illness

(A) Food quality

(B) Food safety

(C) Food standards

(D) Food poisoning

Correct Answer: (B) Food safety

Solution:

Food safety ensures that food is handled, prepared, and stored in ways that prevent food-borne illness.

Quick Tip

Food safety = safe handling and storage of food

---

103. The requirements for food safety management systems are specified by

(A) ISO-22000

(B) ISO-22004

(C) ISO-22006

(D) ISO-22008

Correct Answer: (A) ISO-22000

Solution:

ISO 22000 is an international standard for food safety management systems.

Quick Tip

ISO-22000 = Food Safety Management Standard

---

104. SSOP stands for

(A) Security Standard Operation Procedure

(B) Safe Standard Operation Procedure

(C) Sanitation Standard Operation Procedure

(D) Safe Security Operation procedure

Correct Answer: (C) Sanitation Standard Operation Procedure

Solution:

SSOPs are detailed procedures to ensure sanitary conditions in food processing.

Quick Tip

SSOP = Sanitation Standard Operation Procedure

---

105. Which of the following is a useful tool that can be of great value to increase manufacturing efficiency?

(A) Statistical quality control

(B) Quality control

(C) Food safety and quality control

(D) Security and safety control

Correct Answer: (A) Statistical quality control

Solution:

Statistical quality control uses statistical methods to monitor and control a process, helping increase manufacturing efficiency.

Quick Tip

SQC = Data-based process efficiency tool

---

106. FSSAI head office is located at

(A) Bangalore

(B) Delhi

(C) Calcutta

(D) Mumbai

Correct Answer: (B) Delhi

Solution:

The headquarters of the Food Safety and Standards Authority of India (FSSAI) is located in New Delhi.

Quick Tip

FSSAI HQ = Delhi

---

107. The quality control and hygienic manufacturing of meat products for domestic consumption is ensured by

(A) FFPO

(B) PFA

(C) MFPO

(D) FSSAI

Correct Answer: (C) MFPO

Solution:

MFPO (Meat Food Products Order) regulates the hygienic production of meat products for domestic markets.

Quick Tip

MFPO = Meat Product Hygiene Control

108. APEDA is established in the year

(A) 1986

(B) 1947

(C) 1985

(D) 1987

Correct Answer: (A) 1986

Solution:

APEDA (Agricultural and Processed Food Products Export Development Authority) was established in 1986.

Quick Tip

APEDA = Established in 1986

---

109. Which of the following organization specifies quality system models for quality assurance in production and installation

(A) ISO-9000

(B) ISO-9001

(C) ISO-9006

(D) ISO-9002

Correct Answer: (D) ISO-9002

Solution:

ISO-9002 outlines quality system requirements for production, installation, and servicing in various industries.

Quick Tip

ISO-9002 = QA in production and installation

---

110. The maximum limits of synthetic food colors permitted is

(A) 100 ppm of final product

(B) 200 ppm of final product

(C) 150 ppm of final product

(D) 180 ppm of final product

Correct Answer: (A) 100 ppm of final product

Solution:

The permitted limit for synthetic food colors in final food products is up to 100 ppm.

Quick Tip

Max synthetic color = 100 ppm

---

111. Example for Class-II preservative is

(A) Sugar

(B) Salt

(C) Benzoic Acid

(D) Honey

Correct Answer: (C) Benzoic Acid

Solution:

Benzoic acid is commonly used as a Class-II preservative in processed foods.

Quick Tip

Class-II preservative = Benzoic acid

---

112. For fruit juices, preservatives added in tin bottles or pouches is limited to

(A) 250 ppm

(B) 180 ppm

(C) 200 ppm

(D) 120 ppm

Correct Answer: (B) 180 ppm

Solution:

The allowed preservative level in fruit juices packed in tin bottles or pouches is 180 ppm.

Quick Tip

Fruit juice preservative limit = 180 ppm

---

113. The HACCP system is based on ____ principles

(A) 7

(B) 9

(C) 11

(D) 12

Correct Answer: (A) 7

Solution:

HACCP (Hazard Analysis and Critical Control Points) is based on 7 principles to ensure food safety.

Quick Tip

HACCP = 7 food safety principles

---

114. Marine Products Exports Development Authority is located at

(A) Bangalore

(B) Kochi

(C) Calcutta

(D) Mumbai

Correct Answer: (B) Kochi

Solution:

MPEDA (Marine Products Export Development Authority) is headquartered in Kochi, Kerala.

Quick Tip

MPEDA HQ = Kochi

---

115. World Food Safety Day is observed on

(A) June 7

(B) October 16

(C) April 7

(D) March 22

Correct Answer: (A) June 7

Solution:

World Food Safety Day is celebrated annually on June 7 to draw attention to food safety issues.

Quick Tip

Food Safety Day = June 7

---

116. HACCP stands for . . .

(A) Hazard Analysis and Critical Control Point

(B) Hazard And Critical Certification Points

(C) Hazard And Critical Certification Policy

(D) Hazard Analysis and Critical Control Policy

Correct Answer: (A) Hazard Analysis and Critical Control Point

Solution:

HACCP is a management system addressing food safety through analysis and control of hazards.

Quick Tip

HACCP = Hazard Analysis Critical Control Point

---

117. The content of citric acid percentage in orange is about

(A) 0.32

(B) 0.65

(C) 0.98

(D) 1.33

Correct Answer: (A) 0.32

Solution:

Citrus fruits like orange typically contain about 0.32% citric acid, contributing to their tangy flavor.

Quick Tip

Orange citric acid 0.32%

---

118. Nutritional labelling was first recommended by

(A) FDA

(B) AGMARK

(C) FPO

(D) PFA

Correct Answer: (A) FDA

Solution:

The FDA (Food and Drug Administration) first recommended nutritional labeling to ensure consumer awareness.

Quick Tip

Nutrition labelling = FDA initiative

---

119. Food safety plays an important role in

(A) Food manufacture

(B) Contaminant foods

(C) Food supply

(D) Modern food economics

Correct Answer: (D) Modern food economics

Solution:

Food safety ensures sustainability and efficiency, making it crucial in modern food economics.

Quick Tip

Food safety → Key in modern food economics

---

120. The most hygienic way of drying hands is by using

(A) A warm air dryer

(B) A hand towels

(C) The dish cloth

(D) The apron

Correct Answer: (A) A warm air dryer

Solution:

Using a warm air dryer is considered the most hygienic method for drying hands as it minimizes contact with contaminated surfaces.

Quick Tip

Most hygienic drying = Warm air dryer
