

Food Technology (XL-U)

Question Number : 96

Correct : 1 Wrong : -0.33

Indicate the correct group that contains a monosaccharide, a disaccharide and a trisaccharide.

- (A) Glucose, sucrose, mannose
- (B) Ribose, lactose, raffinose
- (C) Mannose, maltose, lactose
- (D) Raffinose, stachyose, glucose

Question Number : 97

Correct : 1 Wrong : -0.33

In which of the following products, 'must' is used as the substrate for fermentation?

- (A) Beer
- (B) Wine
- (C) Idli
- (D) Tempeh

Question Number : 98

Correct : 1 Wrong : -0.33

Identify the foodborne illness which is not caused by bacteria.

- (A) Botulism (B) Listeriosis (C) Vibriosis (D) Cysticercosis

Question Number : 99

Correct : 1 Wrong : -0.33

Nutrient composition of wheat flour changes with extent of extraction from whole wheat grain. Which of the following statements is true if the extraction rate increased from 50% to 90%?

- (A) Starch increases, protein increases, fat increases, mineral increases
(B) Starch decreases, protein increases, fat increases, mineral increases
(C) Starch decreases, protein decreases, fat increases, mineral decreases
(D) Starch decreases, protein increases, fat decreases, mineral decreases

Question Number : 100

Correct : 1 Wrong : 0

You have two samples of milk, one (X) with 3.8% fat and another (Y) with 0.5% fat. In order to produce a milk with 3.5% fat, 100 ml of Y should be mixed with _____ ml of X.

Question Number : 101

Correct : 1 Wrong : -0.33

Match the items in column I with the items in column II in relation to food safety and standards.

Column I

- P. HACCP
Q. FSSAI
R. CIP
S. CODEX

Column II

1. International food standards
2. Quality control protocol
3. Food plant sanitation and hygiene protocol
4. Indian food standards

- (A) P-2, Q-4, R-3, S-1
(C) P-1, Q-4, R-2, S-3

- (B) P-4, Q-3, R-2, S-1
(D) P-4, Q-2, R-3, S-1

Question Number : 103

Correct : 1 Wrong : 0

A 50% sucrose solution at 20 °C is flowing at a rate of 3.5 m³/h through a pipe with an inside diameter of 0.0475 m and length of 12 m. The viscosity and the density of the solution are 15.43 cp and 1232 kg/m³, respectively. The Reynolds number of the flow is _____ .

Question Number : 103

Correct : 1 Wrong : 0

In a pineapple juice, fibre particles having mean diameter of 160 µm and density of 1075 kg/m³ are settling by gravity. If the density and viscosity of the juice are 1015 kg/m³ and 0.98 cp, respectively, terminal velocity of the fibre particles is _____ mm/s .

Question Number : 104

Correct : 1 Wrong : -0.33

Power consumption in liquid mixing is proportional to _____ .

- (A) Power number $\times$ liquid density $\times$ (rotational speed)³ $\times$ (impeller diameter)⁵
- (B) Power number $\times$ liquid density $\times$ (rotational speed)² $\times$ (impeller diameter)³
- (C) Liquid density $\times$ viscosity of the liquid $\times$ (rotational speed)² $\times$ (impeller diameter)³
- (D) Acceleration due to gravity $\times$ liquid density $\times$ (rotational speed)³ $\times$ (impeller diameter)⁵

Question Number : 105

Correct : 1 Wrong : -0.33

In dye-reduction test for estimation of viable microorganisms, the most commonly used dyes are methylene blue, triphenyltetrazolium–chloride and _____ .

- (A) Malachite green (B) Amaranth (C) Tartrazine (D) Resazurin

Match the following items of group I with the items of group II in relation to the quality of fat.

Group I

- P. Saponification number
- Q. Iodine number
- R. Reichert Meissl number
- S. Acetyl value

(A) P-1, Q-2, R-3, S-4

(C) P-4, Q-1, R-2, S-3

Group II

- 1. Unsaturation of fatty acid
- 2. Volatile water soluble fatty acid
- 3. Hydroxy fatty acid
- 4. Molecular weight of fatty acid

(B) P-1, Q-3, R-4, S-2

(D) P-2, Q-1, R-3, S-4

Question Number : 107

Correct : 2 Wrong : -0.66

Match the following metabolic product (Column I) that indicates the quality of food (Column II).

Column I

- P. Ethanol
- Q. Lactic acid
- R. Trimethylamine
- S. Volatile fatty acid

(A) P-3, Q-2, R-4, S-1

(C) P-4, Q-3, R-2, S-1

Column II

- 1. Canned vegetable
- 2. Fish
- 3. Butter
- 4. Apple juice

(B) P-4, Q-1, R-2, S-3

(D) P-3, Q-4, R-2, S-1

Question Number : 108

Correct : 2 Wrong : -0.66

Correlate the vitamins in column I with their role in promoting reaction/process in column II.

Column I

- P. Riboflavin
- Q. Vitamin D
- R. Pantothenic acid
- S. Vitamin A

(A) P-1, Q-2, R-4, S-3

(C) P-3, Q-4, R-1, S-2

Column II

- 1. Visual cycle
- 2. Acyl group transfer
- 3. Regulation of Ca^{2+} metabolism
- 4. Oxidation-reduction reaction

(B) P-2, Q-1, R-3, S-4

(D) P-4, Q-3, R-2, S-1

Question Number : 109

A pure strain with generation time of 60 min is used in a fermentation process. Following inoculation (0 h), the strain takes 2 h for adaptation, 10 h to achieve maximum growth and 12 h to arrive at the point where the death rate is higher than the growth rate. If the inoculation load is 100 cells, the total population at the end of 10 h will be _____.

Question Number : 110

Correct : 2 Wrong : -0.66

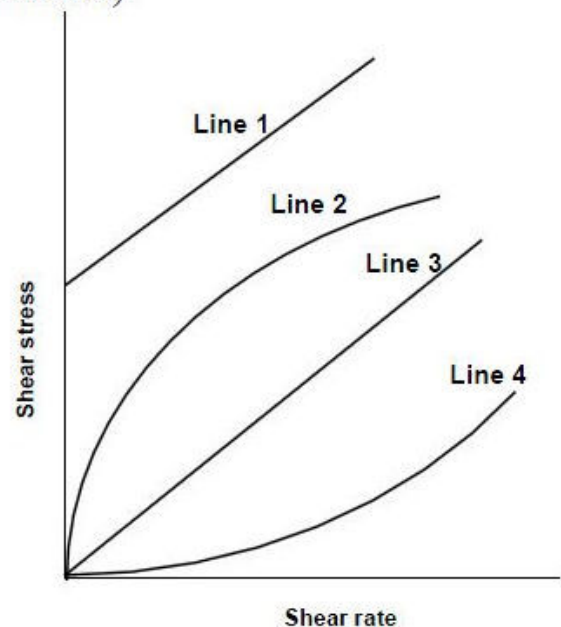
Refer to the shear stress – shear rate plot shown in the figure below. Match the lines (Column I) with appropriate rheological behavior (Column II).

Column I

- P. Line 1
- Q. Line 2
- R. Line 3
- S. Line 4

Column II

- 1. Dilatant
- 2. Newtonian
- 3. Pseudoplastic
- 4. Bingham plastic



- (A) P-2, Q-3, R-4, S-1
- (C) P-2, Q-4, R-3, S-1

- (B) P-1, Q-3, R-4, S-2
- (D) P-4, Q-3, R-2, S-1

Question Number : 111

Correct : 2 Wrong : 0

Water flowing at a rate of 1 kg/min is heated from 12 to 80 °C with flue gas supplied at a rate of 3 kg/min. The temperature and specific heat of the flue gas are 180 °C and 1.05 kJ/kg.K, respectively. If specific heat of water is 4.2 kJ/kg.K and the flow is parallel, then the logarithmic mean temperature difference will be _____ °C.

Question Number : 112

Correct : 2 Wrong : 0

The Lineweaver-Burk plot of an enzymatic reaction shows $V_{\max}$ of $160 \mu\text{mol/l.min}$ and k_m of $60 \mu\text{mol/l}$. For a substrate concentration of $40 \mu\text{mol/l}$, the velocity of the reaction is estimated to be _____ $\mu\text{mol/l.min}$.

Question Number : 113

Correct : 2 Wrong : 0

A suspension containing 2×10^4 spores of organism A having a $D_{121.1^\circ\text{C}}$ value of 1.5 min and 8×10^5 spores of organism B having a $D_{121.1^\circ\text{C}}$ value of 0.8 min is heated at a constant temperature of 121.1°C . The heating time needed to obtain a probability of spoilage '1 in 1000' is _____ min.

Question Number : 114

Correct : 2 Wrong : 0

In an evaporation process, a compressor picks up 0.05 m^3 air in each revolution and compresses 500 kg of air per minute. If the specific volume of air is $0.9 \text{ m}^3/\text{kg}$, then the compressor speed is _____ rpm.

Question Number : 115

Correct : 2 Wrong : 0

For a soybean oil extraction system, solvent:soy ratio is maintained at 0.5:1 (w/w). Original seed contains 18% oil (w/w). If the meal (soy solid) after final desolventization has 0.01 kg oil per kg oil free meal, then the effectiveness of the solvent (kg oil/ kg solvent) in the extraction process is _____.

Question Number : 116

Correct : 1 Wrong : -0.33

The event would have been successful if you _____ able to come.

- (A) are (B) had been (C) have been (D) would have been

Question Number : 117

Correct : 1 Wrong : -0.33

There was no doubt that their work was thorough.

Which of the words below is closest in meaning to the underlined word above?

- (A) pretty (B) complete (C) sloppy (D) haphazard

Question Number : 118

Correct : 1 Wrong : -0.33

Four cards lie on a table. Each card has a number printed on one side and a colour on the other. The faces visible on the cards are 2, 3, red, and blue.

Proposition: If a card has an even value on one side, then its opposite face is red.

The cards which MUST be turned over to verify the above proposition are

- (A) 2, red (B) 2, 3, red (C) 2, blue (D) 2, red, blue

Question Number : 119

Correct : 1 Wrong : -0.33

What is the value of x when $81 \times \left(\frac{16}{25}\right)^{x+2} \div \left(\frac{3}{5}\right)^{2x+4} = 144$?

- (A) 1 (B) -1 (C) -2 (D) Cannot be determined

Question Number : 120**Correct : 1 Wrong : -0.33**

Two dice are thrown simultaneously. The probability that the product of the numbers appearing on the top faces of the dice is a perfect square is

- (A) $\frac{1}{9}$ (B) $\frac{2}{9}$ (C) $\frac{1}{3}$ (D) $\frac{4}{9}$

Question Number : 121**Correct : 2 Wrong : -0.66**

Bhaichung was observing the pattern of people entering and leaving a car service centre. There was a single window where customers were being served. He saw that people inevitably came out of the centre in the order that they went in. However, the time they spent inside seemed to vary a lot: some people came out in a matter of minutes while for others it took much longer.

From this, what can one conclude?

- (A) The centre operates on a first-come-first-served basis, but with variable service times, depending on specific customer needs.
(B) Customers were served in an arbitrary order, since they took varying amounts of time for service completion in the centre.
(C) Since some people came out within a few minutes of entering the centre, the system is likely to operate on a last-come-first-served basis.
(D) Entering the centre early ensured that one would have shorter service times and most people attempted to do this.

Question Number : 122**Correct : 2 Wrong : -0.66**

A map shows the elevations of Darjeeling, Gangtok, Kalimpong, Pelling, and Siliguri. Kalimpong is at a lower elevation than Gangtok. Pelling is at a lower elevation than Gangtok. Pelling is at a higher elevation than Siliguri. Darjeeling is at a higher elevation than Gangtok.

Which of the following statements can be inferred from the paragraph above?

- i. Pelling is at a higher elevation than Kalimpong
- ii. Kalimpong is at a lower elevation than Darjeeling
- iii. Kalimpong is at a higher elevation than Siliguri
- iv. Siliguri is at a lower elevation than Gangtok

- (A) Only ii (B) Only ii and iii (C) Only ii and iv (D) Only iii and iv

Question Number : 123

Correct : 2 Wrong : -0.66

P, Q, R, S, T and U are seated around a circular table. R is seated two places to the right of Q. P is seated three places to the left of R. S is seated opposite U. If P and U now switch seats, which of the following must necessarily be true?

- (A) P is immediately to the right of R
- (B) T is immediately to the left of P
- (C) T is immediately to the left of P or P is immediately to the right of Q
- (D) U is immediately to the right of R or P is immediately to the left of T

Question Number : 124

Correct : 2 Wrong : -0.66

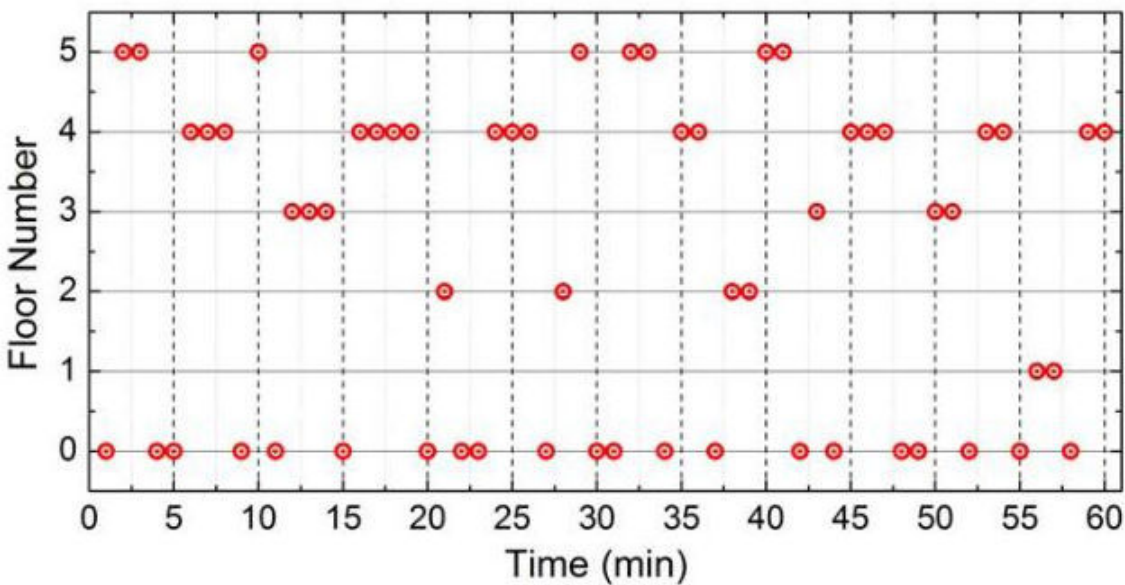
Budhan covers a distance of 19 km in 2 hours by cycling one fourth of the time and walking the rest. The next day he cycles (at the same speed as before) for half the time and walks the rest (at the same speed as before) and covers 26 km in 2 hours. The speed in km/h at which Budhan walks is

- (A) 1
- (B) 4
- (C) 5
- (D) 6

Question Number : 125

Correct : 2 Wrong : -0.66

The points in the graph below represent the halts of a lift for durations of 1 minute, over a period of 1 hour.



Which of the following statements are correct?

- i. The elevator never moves directly from any non-ground floor to another non-ground floor over the one hour period
- ii. The elevator stays on the fourth floor for the longest duration over the one hour period

- (A)) Only i
- (B) Only ii
- (C) Both i and ii
- (D) Neither i nor ii