

Q.1 The protein responsible for spongy structure in bread is

- A) Albumin    B) Zein    C) Gluten    D) Gliadin

Q.2 The factor most responsible for making a good ice cream is

- A) Water content    B) Homogenization    C) Emulsifying agent    D) Mixing index

Q.3 Listed below are some of the functions of fat in the human nutrition. Identify the INCORRECT function.

- A) Concentrated source of energy    B) Transport of oxygen to various organs  
C) Absorption of fat soluble vitamins    D) Synthesis of cell membranes and hormones

Q.4 During ripening of cheese by *Penicillium roqueforti* the characteristic aroma is because of

- A) Methyl ketones    B) Aceto acetic acid    C) Diacetyl    D) Acetoin

Q.5 Which of the following statements is NOT TRUE in case of oxidative rancidity of fatty foods?

- A) Peroxides and hydroperoxides are formed during auto-oxidation  
B) Auto-oxidation is a complex chain reaction  
C) The final breakdown products of auto-oxidation are aldehydes, ketones and alcohols  
D) The reaction is brought about by an enzyme called lipase

Q.6 Which of the following group of characteristics is CORRECT in respect of *Shigella* spp found as food pathogen?

- A) G+ve, motile by gliding, spore forming cocci and transmitted by contaminated food  
B) G-ve, motile by flagella, spore forming bacilli and transmitted by contaminated water  
C) G+ve, non-motile, non- spore forming cocci and transmitted by contaminated air and water both  
D) G-ve, non-motile, non- spore forming and transmitted by fecal-oral route

Q.7 Match the following

- |                   |             |
|-------------------|-------------|
| P. Thiamin        | 1. Pellagra |
| Q. Nicotinic acid | 2. Beriberi |
| R. Folic acid     | 3. Scurvy   |
| S. Ascorbic acid  | 4. Anemia   |

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

Q.8 Which of the following conditions for the heat resistance of microorganism is CORRECT?

- A) Psychrophiles < Mesophiles < Thermophiles

B) Psychrophiles > Mesophiles > Thermophiles

C) Thermophiles > Psychrophiles > Mesophiles

D) Mesophiles < Thermophiles < Psychrophiles

Q.9 The solubility of sodium bicarbonate in water is 9.6g/100g at 20<sup>0</sup> C and 16.4g/100g at 60<sup>0</sup>C. If a saturated solution of sodium bicarbonate at 60<sup>0</sup>C is cooled to 20<sup>0</sup>C, the percentage of the dissolved salt crystallized out will be

A) 20.5      B) 25.4      C) 41.5      D) 45.2

Q.10 A sugar syrup (density=1040kg/m<sup>3</sup> and viscosity=1600×10<sup>-6</sup> Pa.s) is required to be pumped in to a tank (1.5 m dia and 3m height) by a 3cm inside dia pipe. If the liquid is required to flow under laminar flow conditions flow conditions, the minimum time to fill the tank with the syrup will be

A) 192.9h      B)19.3h      C)38.6h      D)57.9h

Q.11 Match the following

P. Soft kraut	1. Due to growth of bacteria, mold and/or yeast
Q. Slimy kraut	2. Due to surface growth of Torula yeast
R. Rotted kraut	3. Bacterial growth does not initiate till last stage
S. Pink kraut	4. Rapid growth of Lactobacillus cucumens and L. plantarum specially at elevated temperature

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

Q.12 Match the following

P. High amylose starch	1. White sauces in cook freeze operations
Q. Pectin	2. Edible film for wrapping candies
R. Starch phosphates	3. As humectant in confectionary
S. Glucose	4. Setting agent in jam and jellies

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

Q.13 Match the following

P. Butter	1. Menthol
Q. Orange	2. Limonene
R. Cloves	3. Eugenol
S. Mint	4. Diacetal

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

Q.14 Match the following

P. Curd	1. Foam
Q. Butter	2. Emulsion
R. Vegetable soup	3. Sol
S. Whipped egg white	4. Gel

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

Q.15 In an actively growing yeast culture, the cell concentration increased from  $10^3$  cell per ml to  $10^7$  cell per ml in 4h. The doubling time of the yeast is

- A) 120 min    B) 30 min    C) 18 min    D) 60 min

Q.16 The steps followed in Gram's staining of microorganism are

- P. Washing with neutral organic solvent  
Q. Counter staining with a contrast dye  
R. Staining with basic dye  
S. Fixing the colour with a suitable mordant

Identify the CORRECT sequence

- A) Q-S-R-P    B) P-Q-R-S    C) Q-P-S-R    D) R-S-P-Q

Q.17 & 18 A continuous used to dry 12kg/min of a blanched vegetable containing 50% moisture (wb) to give a product containing 10% moisture. As the dryer could handle feed material with moisture content not more than 25%, a part of dried material was recycled and mixed with the fresh feed.

- A) The evaporation rate in the dryer would be  
1) 2.08 kg/min    2) 5.33 kg/min    C) 3.33 kg/min    D) 2.93 kg/min  
B) The recycle ratio to achieve the drying requirement would be  
1) 2.00    2) 1.25    3) 1.67    4) 4.16

Q.19 & 20 An enzyme has a  $K_m$  of  $4.7 \times 10^{-5}$  M and  $V_m$  is 22 micro moles per litre per min. The enzyme reaction is carried out at a substrate concentration of  $2 \times 10^{-4}$  M

- A) The initial reaction velocity of this enzyme catalysed reaction will be  
1) 6.5 microns moles per litre per min    2) 17.8 microns moles per litre per min  
3) 13 microns moles per litre per min    4) 8.9 microns moles per litre per min  
B) Addition of a competitive inhibitor ( $K_i = 3 \times 10^{-4}$  M) at a concentration of  $5 \times 10^{-4}$  M to the above reaction system will result in the inhibition of enzymatic reaction by  
1) 24.0%    2) 62.5%    3) 76.0%    4) 57.5%

Q.21 & 22 The F-value at  $121.1^\circ\text{C}$ , equivalent to 99.9999 per cent destruction of a strain of Clostridium botulinum is 1.8 min. ( $D_0$  and  $F_0$  represent the decimal reduction time and lethality of the destruction process at reference temperature, respectively)

- A) The  $D_0$  value of the organism will be  
1) 10.8 min    2) 0.3 min    3) 6.0 min    4) 0.2 min  
B) The  $F_0$  value, based on 12D concept using the  $D_0$  value of the above organism and a most likely spore load in the product of 100 will be

1)3.0 min

2)1.2 min

3)1.5 min

4)4.2 min