

Andhra Pradesh State Council of Higher Education

Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

Question Paper Name :	Food Technology 30th May 2024 Shift 2
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No

Show Progress Bar :	No
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Food Technology

Section Id :	33300851
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	120
Section Marks :	120
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 3330086001 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Zeaxanthin is a

Options :

1. ✘ Bacteriochlorophyll

2. ✔ Carotenoid

3. ✘ Steroid

4. ✘ Protein

Question Number : 2 Question Id : 3330086002 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The disease pellagra is due to a deficiency of

Options :

1. ✘ Vitamin C

2. ✘ Biotin

3. ✘ Folic acid

4. ✔ Niacin

Question Number : 3 Question Id : 3330086003 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Enantiomers are

Options :

1. ✔ Stereoisomers that are non-superimposable mirror images

2. ✘ Optical isomers that are superimposable mirror images

3. ✘

Isomers which differ in their configuration around a single carbon atom

4. ✘ Stereoisomers that are non-superimposable and non-mirror images

Question Number : 4 Question Id : 3330086004 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Rhombic plate like osazones are formed by

Options :

1. ✘ Glucose
2. ✔ Galactose
3. ✘ Maltose
4. ✘ Sucrose

Question Number : 5 Question Id : 3330086005 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is true about the rancidity?

Options :

1. ✔ Oxidation of oil present in food

2. ✘ Reduction of oil present in food
3. ✘ Oxidation of sugars present in food
4. ✘ Reduction of sugars present in food

Question Number : 6 Question Id : 3330086006 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The chemical formula of oleic acid is

Options :

1. ✘ $C_{18}H_{32}O_2$
2. ✔ $C_{18}H_{34}O_2$
3. ✘ $C_{17}H_{34}O_2$
4. ✘ $C_{17}H_{32}O_2$

Question Number : 7 Question Id : 3330086007 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which among these is an index organism to find the efficacy of pasteurization is

Options :

1. ✘ *Staphylococcus aureus*
2. ✔ *Mycobacterium tuberculosis*
3. ✘ *Escherichia coli*
4. ✘ *Bacillus cereus*

Question Number : 8 Question Id : 3330086008 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The most abundant naturally occurring non-essential amino acid present in human body is

Options :

1. ✔ Glutamine
2. ✘ Histidine
3. ✘ Leucine
4. ✘ Threonine

Question Number : 9 Question Id : 3330086009 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Which of the following is true about the myoglobin

Options :

1. ✓ Present in skeletal and cardiac muscle
2. ✗ Present only in kidneys
3. ✗ Present only in liver
4. ✗ Present only in brain

Question Number : 10 Question Id : 3330086010 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ is involved in vitamin A metabolism

Options :

1. ✗ Tannins
2. ✓ Beta Carotene
3. ✗ Chlorophyll
4. ✗ Anthocyanins

Question Number : 11 Question Id : 3330086011 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Linalool is a

Options :

1. ✓ Monoterpene
2. ✘ Diterpene
3. ✘ Triterpene
4. ✘ Tetraterpene

Question Number : 12 Question Id : 3330086012 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the non-polar aliphatic amino acid

Options :

1. ✘ Tryptophan
2. ✘ Serine

3. ✘ Histidine

4. ✔ Valine

Question Number : 13 Question Id : 3330086013 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Cellulose is a polymer of

Options :

1. ✘ Branched chain of glucose monomers joined by β 1-4 glycosidic linkages

2. ✔ Unbranched chain of glucose monomers joined by β 1-4 glycosidic linkages

3. ✘ Branched chain of glucose monomers joined by α 1-4 glycosidic linkages

4. ✘ Unbranched chain of glucose monomers joined by α 1-4 glycosidic linkages

Question Number : 14 Question Id : 3330086014 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Ceramides are

Options :

1. ✘ Protein synthesized by endoplasmic reticulum

2. ✓ Sphingolipid synthesized by endoplasmic reticulum

3. ✘ Carbohydrate synthesized by endoplasmic reticulum

4. ✘ Sphingolipid synthesized by golgi apparatus

Question Number : 15 Question Id : 3330086015 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is the precursor of testosterone

Options :

1. ✓ Cholesterol

2. ✘ Terpenoid

3. ✘ Thyroxine

4. ✘ Glucose

Question Number : 16 Question Id : 3330086016 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In an α -helix hydrogen bonds are present

Options :

1. ✘ Between chains that run side by side
2. ✘ Only between amino acids of opposite charge
3. ✔ Within a single chain
4. ✘ Between polar amino acid and water

Question Number : 17 Question Id : 3330086017 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following has the lowest melting point

Options :

1. ✔ Fatty acids with sites of unsaturation with *cis* double bonds
2. ✘ Fatty acids with sites of unsaturation with *trans* double bonds
3. ✘ Fatty acids with no sites of unsaturation
4. ✘ Fatty acids with longer hydrophobic tails

Question Number : 18 Question Id : 3330086018 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is not true about the following

Options :

1. ✘ Chlorophyll 'b' contains aldehyde groups in their side chains
2. ✘ Chlorophyll 'a' contains methyl groups in their side chains
3. ✔ Chlorophyll 'a' contains aldehyde groups in their side chains
4. ✘ Chlorophyll 'a' and chlorophyll b contains the metal ion magnesium

Question Number : 19 Question Id : 3330086019 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The major component of bee wax is

Options :

1. ✔ Triacontanoylpalmitate
2. ✘ Tripalmitate
3. ✘ Contanoyl acetate
4. ✘

Dicontanoylpalmitate

Question Number : 20 Question Id : 3330086020 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the amino acid with imino acid group

Options :

1. ✘ Histidine

2. ✘ Glycine

3. ✘ Alanine

4. ✔ Proline

Question Number : 21 Question Id : 3330086021 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The component of coenzyme A is

Options :

1. ✘ Folic acid

2. ✘ Biotin

3. ✓ Pantothenic acid

4. ✗ Pyridoxine

Question Number : 22 Question Id : 3330086022 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Polyphenol oxidase is an enzyme that leads to

Options :

1. ✓ Enzymatic browning of fruits and vegetables

2. ✗ Enzymatic conversion of proteins into fats in fruits

3. ✗ Enzyme that protects the fruits taste

4. ✗ Enzyme that is used for artificial ripening of fruits

Question Number : 23 Question Id : 3330086023 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Kwashiorkor is a nutritional deficiency disorder occurs due to lack ofin diet

Options :

1. ✗ Fats

2. ✘ Carbohydrates

3. ✘ Minerals

4. ✔ Proteins

Question Number : 24 Question Id : 3330086024 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Adding micronutrients deliberately to the food products that are in deficit in the diet of a given population so as to correct or prevent identified deficiency and improve the health of individuals is known as

Options :

1. ✔ Food fortification

2. ✘ Food fruitification

3. ✘ Food rancidity

4. ✘ Food blanching

Question Number : 25 Question Id : 3330086025 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Microorganisms destructed using thermal methods follows which order kinetics

Options :

1. ✘ Zero order
2. ✘ Second order
3. ✔ First order
4. ✘ Both zero order and first order

Question Number : 26 Question Id : 3330086026 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Clostridium botulinum is a

Options :

1. ✘ Gram negative, spherical-shaped, spore forming, aerobic bacteria
2. ✔ Gram positive, rod-shaped, spore forming, anaerobic motile bacteria
3. ✘ Gram positive, rod-shaped, non-spore forming, aerobic bacteria
4. ✘ Gram positive, spherical-shaped, anaerobic, non-motile bacteria

Question Number : 27 Question Id : 3330086027 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Aflatoxins are produced by

Options :

1. ✓ *Aspergillus flavus*
2. ✗ *Shigella dysenteriae*
3. ✗ *Salmonella typhimurium*
4. ✗ *Escherichia coli*

Question Number : 28 Question Id : 3330086028 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Sauerkraut is a

Options :

1. ✓ Fermented product of cabbage
2. ✗ Fermented product of garlic
3. ✗ Fermented product of potato

4. ✘ Fermented product of onions

Question Number : 29 Question Id : 3330086029 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ is the portion of the growth curve where rapid growth of bacteria is observed

Options :

1. ✘ Lag phase

2. ✔ Logarithmic phase

3. ✘ Stationary phase

4. ✘ Decline phase

Question Number : 30 Question Id : 3330086030 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is true about tannins

Options :

1. ✔ FeCl_3 test is used to detect tannins

2. ✘ Salkowski's test is used to detect tannins

3. ✘ Libermann-Buchard's test is used to detect tannins

4. ✘ Biuret test is used to detect tannins

Question Number : 31 Question Id : 3330086031 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which bacteria gives a positive reaction towards methyl red test

Options :

1. ✘ *Enterobacter aerogenes*

2. ✔ *Escherichia coli*

3. ✘ *Aspergillus niger*

4. ✘ *Klebsiella pneumoniae*

Question Number : 32 Question Id : 3330086032 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the statements is true about the structure of fungi

Options :

1. ✔ Chitinous cell walls, plasma membranes containing ergosterol, and 80S rRNA

2. ✘ Non-chitinous cell walls, plasma membranes containing ergosterol, and 70S rRNA
3. ✘ Chitinous cell walls, plasma membranes containing sugars, and 70S rRNA
4. ✘ No cell walls and plasma membranes

Question Number : 33 Question Id : 3330086033 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In grams staining technique, which acts as a mordant

Options :

1. ✘ Alcohol
2. ✔ Iodine
3. ✘ Safranin
4. ✘ Crystal violet

Question Number : 34 Question Id : 3330086034 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Mycolic acid is a characteristic feature of

Options :

1. ✓ *Mycobacterium tuberculosis*

2. ✗ *Staphylococcus aureus*

3. ✗ *Salmonella typhimurium*

4. ✗ *Bacillus subtilis*

Question Number : 35 Question Id : 3330086035 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the correct sequence of products during wine preparation

Options :

1. ✓ Glucose → pyruvic acid → acetaldehyde → ethyl alcohol

2. ✗ Glucose → acetaldehyde → pyruvic → ethyl alcohol

3. ✗ Glucose → acetaldehyde → ethyl alcohol

4. ✗ Glucose → pyruvic acid → ethyl alcohol

Question Number : 36 Question Id : 3330086036 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Acetobacter aceti is used in the preparation of

Options :

1. ✘ Beer
2. ✔ Vinegar
3. ✘ Cheese
4. ✘ Soya sauce

Question Number : 37 Question Id : 3330086037 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Acid fast staining method includes which of the following

Options :

1. ✘ Methyl red
2. ✘ Saffranine
3. ✘ crystal violet
4. ✔ Carbol fuchsin

Question Number : 38 Question Id : 3330086038 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which is important to create an effective food safety management system

Options :

1. ✘ Hazard atmosphere and critical common points
2. ✘ Hazard approval and crucial contain points
3. ✘ Hazard analysis and critical common perspectives
4. ✔ Hazard analysis and critical control points

Question Number : 39 Question Id : 3330086039 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is true ISO 22000

Options :

1. ✘ ISO 22000 is a policy developed to promote industries excluding food industry
2. ✔ ISO 22000 requires that the food safety policy be supported by measurable objectives rather than being used as a framework for establishing objectives
3. ✘ ISO 22000 is a policy equivalent to ISO 9001

4. ✘ ISO 22000 is policy developed to promote leather industry

Question Number : 40 Question Id : 3330086040 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

National Food Laboratory, Gaziabad is

Options :

1. ✘ No accreditation is required

2. ✔ Accredited by National Accreditation Board of Testing and Calibration Laboratories and Recognized by Food Safety and Standards authority of India

3. ✘ Accredited by Indian Council of Medical Research

4. ✘ Accredited by Council of Scientific and Industrial Research

Question Number : 41 Question Id : 3330086041 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Consumer protection act was established in

Options :

1. ✘ 1988

2. ✔ 1986

3. ✘ 1980

4. ✘ 1978

Question Number : 42 Question Id : 3330086042 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The length of time a food can be kept under stated storage conditions while maintaining its optimum safety and quality is known as

Options :

1. ✔ Shelf life

2. ✘ Half life

3. ✘ Median Life

4. ✘ Mean life

Question Number : 43 Question Id : 3330086043 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Prevention of food adulteration act was established in

Options :

1. ✘ 1964

2. ✓ 1954

3. ✗ 1974

4. ✗ 1984

Question Number : 44 Question Id : 3330086044 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Recommended Dietary Allowance of vitamin E is

Options :

1. ✓ 15 mg per day

2. ✗ 50 mg per day

3. ✗ 55 mg per day

4. ✗ 60 mg per day

Question Number : 45 Question Id : 3330086045 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the probiotic bacteria

Options :

1. ✓ *Bifidobacterium longum*
2. ✗ *Mycobacterium tuberculosis*
3. ✗ *Rhizobium leguminosarum*
4. ✗ *Campylobacter jejuni*

Question Number : 46 Question Id : 3330086046 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Isoflavone is a

Options :

1. ✗ Terpenoid
2. ✓ Phytoestrogen
3. ✗ Saponin
4. ✗ Vitamin B12

Question Number : 47 Question Id : 3330086047 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

In kidneys, Vitamin D is converted into 1, 25 dihydroxyvitamin D through

Options :

1. ✘ Carboxylation
2. ✘ Nitration
3. ✘ Deamination
4. ✔ Hydroxylation

Question Number : 48 Question Id : 3330086048 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

In accordance to the FSSAI rules, the following comes under class II preservatives

Options :

1. ✘ Honey
2. ✘ Vinegar
3. ✘ Edible vegetable oil
4. ✔ Sorbic acid including its salts

Question Number : 49 Question Id : 3330086049 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ conditions are considered as high temperature short time pasteurization of heating milk

Options :

1. ✓ 71.7° C for 15 seconds
2. ✗ 71.7° C for 15 minutes
3. ✗ 71.7° C for 60 seconds
4. ✗ 71.7° C for 30 minutes

Question Number : 50 Question Id : 3330086050 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The dimensions of kinematic viscosity are

Options :

1. ✓ L^2T^{-1}
2. ✗ $L^{-1}T^{-1}$
3. ✗ L^2T^{-2}
4. ✗ $L^{-1}T^{-2}$

Question Number : 51 Question Id : 3330086051 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Cod liver oil is rich in

Options :

1. ✓ Omega-3 fatty acids
2. ✗ Palmitic acid
3. ✗ Oleic acid
4. ✗ Linolenic acid

Question Number : 52 Question Id : 3330086052 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Rumenic acid is a

Options :

1. ✗ Conjugated hexadecadienoic acid
2. ✗ Conjugated heptadecadienoic acid
3. ✓ Conjugated linoleic acid

4. ✖ Conjugated decadienoic acid

Question Number : 53 Question Id : 3330086053 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Alpha tocopherol contains

Options :

1. ✔ Three methyl groups attached to chromanol ring
2. ✖ One methyl group attached to chromanol ring
3. ✖ Eight methyl groups attached to chromanol ring
4. ✖ No methyl group attached to chromanol ring

Question Number : 54 Question Id : 3330086054 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A glucosinolate present in white mustard

Options :

1. ✔ Sinalbin

2. ✖

Cobalamin

3. ✘ Thiamine

4. ✘ Asparagine

Question Number : 55 Question Id : 3330086055 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Codex Alimentarius Commission is an international food standard commission

Options :

1. ✘ Established by FSSAI

2. ✘ Established by HACCP

3. ✔ Jointly established by Food and Agriculture Organization and the World Health Organization

4. ✘ Jointly established by FSSAI and HACCP

Question Number : 56 Question Id : 3330086056 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Blanching is a unit operation commonly used in vegetable processing is a

Options :

1. ✘ Chemical method to remove antioxidants from vegetables
2. ✔ Heat sterilization method to inactivate deleterious enzymes prior to canning, freezing and drying
3. ✘ Chilling method to remove water content from vegetables
4. ✘ Moisturization method to increase fortification of vegetables

Question Number : 57 Question Id : 3330086057 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the descending order of the fatty acids in the refined corn oil

Options :

1. ✔ PUFA>MUFA>SFA
2. ✘ SFA>PUFA>MUFA
3. ✘ PUFA>SFA>MUFA
4. ✘ SFA>MUFA>PFA

Question Number : 58 Question Id : 3330086058 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Corn gluten meal is a by-product of

Options :

1. ✓ Wet milling of maize
2. ✗ Wet milling of cabbage
3. ✗ Wet milling of banana
4. ✗ Wet milling of mangoes

Question Number : 59 Question Id : 3330086059 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Beta-lactoglobulin is a major whey protein absent in

Options :

1. ✓ Camel's milk
2. ✗ Cow's milk
3. ✗ Goat's milk
4. ✗ Cow's milk and Goat's milk

Question Number : 60 Question Id : 3330086060 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The formula for Newton's law of cooling is

Options :

1. ✘ $T(t) = (T_o - T_s) e^{-kt}$

2. ✘ $T(t) = T_s + (T_o - T_s)$

3. ✘ $T(t) = T_s + e^{-kt}$

4. ✔ $T(t) = T_s + (T_o - T_s) e^{-kt}$

Question Number : 61 Question Id : 3330086061 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Indian Institute of Millets Research is located in

Options :

1. ✘ Visakhapatnam, Andhra Pradesh

2. ✘ Bengaluru, Karnataka

3. ✔ Hyderabad, Telangana

4. ✘ Chennai, Tamilnadu

Question Number : 62 Question Id : 3330086062 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Scientific name of black gram

Options :

1. ✔ *Vigna mungo*

2. ✘ *Vigna radiata*

3. ✘ *Cicer aritinum L.*

4. ✘ *Cajanus cajan*

Question Number : 63 Question Id : 3330086063 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Hordeum vulgare is commonly known as

Options :

1. ✘ Wheat

2. ✘ Jowar

3. ✓ Barley

4. ✘ Red gram

Question Number : 64 Question Id : 3330086064 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is used as sugar substitute in candies

Options :

1. ✘ Ribitol

2. ✓ Xylitol

3. ✘ Inositol

4. ✘ Mannitol

Question Number : 65 Question Id : 3330086065 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which is known as invert sugar

Options :

1. ✘ Glucose

2. ✘ Fructose

3. ✔ Sucrose

4. ✘ Maltose

Question Number : 66 Question Id : 3330086066 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The only carbohydrate which does not have any chiral carbon atoms is

Options :

1. ✔ Dihydroxyacetone

2. ✘ Erythrose

3. ✘ Erythrulose

4. ✘ Glyceraldehyde

Question Number : 67 Question Id : 3330086067 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Palmitic acid has

Options :

1. ✘ 28 carbon atoms
2. ✘ 32 carbon atoms
3. ✘ 8 carbon atoms
4. ✔ 16 carbon atoms

Question Number : 68 Question Id : 3330086068 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Marmalade is a

Options :

1. ✘ Milk preserved product
2. ✔ Sugar and juice preserved product
3. ✘ Yeast preserved product
4. ✘ Bacterial preserved product

Question Number : 69 Question Id : 3330086069 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The percentage of cinnamaldehyde in the essential oil of cinnamon bark

Options :

1. ✘ 50

2. ✘ 10

3. ✘ 20

4. ✔ 90

Question Number : 70 Question Id : 3330086070 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is not a millet

Options :

1. ✔ Quinoa

2. ✘ Bajra

3. ✘ Kangni

4. ✘ Jowar

Question Number : 71 Question Id : 3330086071 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Enzymatic tenderization of meat uses

Options :

1. ✘ Hydrolytic enzymes
2. ✘ Lipolytic enzymes
3. ✘ Glycolytic enzymes
4. ✔ Proteolytic enzymes

Question Number : 72 Question Id : 3330086072 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

As per the FSSAI, the specification of total soluble solids in jam is

Options :

1. ✔ 65%
2. ✘ 10%
3. ✘ 45%
4. ✘ 5%

Question Number : 73 Question Id : 3330086073 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which among the following are food adulterants

Options :

1. ✘ Methane
2. ✘ Hexane
3. ✔ Ethylene
4. ✘ Octane

Question Number : 74 Question Id : 3330086074 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pulsed electric field technology is useful in

Options :

1. ✔ Food preservation
2. ✘ Food fortification
3. ✘ Food rancidity

4. ✘ Food adulteration

Question Number : 75 Question Id : 3330086075 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The colour of star ruby grapefruit is due to

Options :

1. ✘ Quercetin

2. ✘ Resveratrol

3. ✘ Ellagic acid

4. ✔ Lycopene

Question Number : 76 Question Id : 3330086076 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Sublimation is a process of converting

Options :

1. ✔ Solid to gaseous state

2. ✘ Gaseous to liquid state

3. ✘ Liquid to solid state

4. ✘ Solid to solid state

Question Number : 77 Question Id : 3330086077 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The fat content is in the range (high to low) of

Options :

1. ✔ Whole milk>butter milk>skimmed milk

2. ✘ Skimmed milk>butter milk>whole milk

3. ✘ Butter milk>whole milk>skimmed milk

4. ✘ Skimmed milk>whole milk>butter milk

Question Number : 78 Question Id : 3330086078 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following statements is true about 'water in oil' emulsion,

Options :

1. ✘ Water will be the dispersion medium and oil will be the dispersion phase

2. ✘ Both water and oil will be the dispersion phases

3. ✔ Water will be the dispersion phase and oil will be the dispersion medium

4. ✘ Both water and oil will be the dispersion medium

Question Number : 79 Question Id : 3330086079 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Foodborne pathogenic bacteria, *Escherichia coli O157:H7* produces

Options :

1. ✔ Shiga toxin

2. ✘ Mycotoxin

3. ✘ Aflatoxin

4. ✘ Ricin

Question Number : 80 Question Id : 3330086080 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The maximum permissible limit of machine generating electron beams in food industry to inactivate microorganisms is

Options :

1. ✓ 10 MeV
2. ✗ 25 MeV
3. ✗ 50 MeV
4. ✗ 100 MeV

Question Number : 81 Question Id : 3330086081 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The water activity range required for bacterial growth

Options :

1. ✓ 1 to 0.75
2. ✗ 10 to 15
3. ✗ 15 to 25
4. ✗ 25 to 30

Question Number : 82 Question Id : 3330086082 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pectin is

Options :

1. ✓ Anionic polysaccharide
2. ✗ Cationic polysaccharide
3. ✗ Amino acid
4. ✗ Hormone

Question Number : 83 Question Id : 3330086083 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Bottom fermenting yeasts produce larger beers at temperatures

Options :

1. ✓ $< 15\text{ }^{\circ}\text{C}$
2. ✗ $> 15\text{ }^{\circ}\text{C}$
3. ✗ $\geq 25\text{ }^{\circ}\text{C}$

4. ✘ $\geq 35\text{ }^{\circ}\text{C}$

Question Number : 84 Question Id : 3330086084 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Food rheology is a study of

Options :

1. ✘ Bacteria in food materials
2. ✘ Fungus in food materials
3. ✔ Deformation and flow of foods under well-defined conditions
4. ✘ Molds in food materials

Question Number : 85 Question Id : 3330086085 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Venturimeter works on

Options :

1. ✔ Bernoulli's principle
2. ✘ Pythagoras principle

3. ✘ Sherwood number

4. ✘ Biot number

Question Number : 86 Question Id : 3330086086 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The enthalpy of evaporation is a function of

Options :

1. ✘ Weight

2. ✘ Humidity

3. ✔ Temperature

4. ✘ Density

Question Number : 87 Question Id : 3330086087 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The vapor pressure of water in a solution is always ___ the vapor pressure of pure water, when the temperature of both the solution and solvent are the same with the same external pressure acting over them

Options :

1. ✓ Lower than

2. ✗ Higher than

3. ✗ Equal to

4. ✗ Perpendicular to

Question Number : 88 Question Id : 3330086088 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Extrusion cooking is a

Options :

1. ✗ Low temperature short time process

2. ✗ High temperature long time process

3. ✓ High temperature short time process

4. ✗ Low temperature long time process

Question Number : 89 Question Id : 3330086089 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

The possible relationship between relative centrifugal force and rotations per minute

Options :

1. ✓ $g = \text{rpm}^2 \times r \times 1.118 \times 10^{-5}$

2. ✗ $g = \text{rpm}^2 \times 1.118 \times 10^{-5}$

3. ✗ $g = \text{rpm}^2 \times r$

4. ✗ $g = \text{rpm}^2 \times r^2 \times 1.118 \times 10^{-7}$

Question Number : 90 Question Id : 3330086090 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

In food process engineering, the unsteady state of conductive heat transfer states that

Options :

1. ✗ The changes in temperature depend only on the position

2. ✓ The changes in temperature depend not only on the position but also on the time

3. ✗ No changes in temperature

4. ✗ The changes in temperature depend only on the time

Question Number : 91 Question Id : 3330086091 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What happens when electromagnetic field is applied to the food materials containing water

Options :

1. ✓ The water molecules orient themselves according to the polarity of the field
2. ✘ The water molecules orient attains random orientation
3. ✘ The water molecules evaporate during the process
4. ✘ The water molecules orient did not show any polarity

Question Number : 92 Question Id : 3330086092 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

During microwave processing of food materials

Options :

1. ✘ Microwave energy itself is a thermal energy
2. ✘ Heating is a consequence of light energy in a microwave
3. ✘

No interactions between microwave energy and dielectric properties of food materials

4. ✓ Heating is a consequence of interactions between microwave energy and dielectric properties of food materials

Question Number : 93 Question Id : 3330086093 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Milling process is linked to

Options :

1. ✗ Expansion
2. ✓ Size reduction
3. ✗ Crystallization
4. ✗ Extrusion

Question Number : 94 Question Id : 3330086094 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process of food preservation using drying technique

Options :

1. ✓ Reduces water activity
2. ✘ Increases water activity
3. ✘ No change in water activity
4. ✘ No relation to water activity

Question Number : 95 Question Id : 3330086095 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Gerber centrifuge is used to

Options :

1. ✘ Measure protein content in milk
2. ✘ Measure carbohydrate content in milk
3. ✓ Measure fat content in milk
4. ✘ Measure bacteria in milk

Question Number : 96 Question Id : 3330086096 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

A dimensionless number which approximates the ratio of buoyancy force to viscous force is

Options :

1. ✓ Grashof number
2. ✗ Sherwood number
3. ✗ Schmidt number
4. ✗ Reynold's number

Question Number : 97 Question Id : 3330086097 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A low biot number < 0.2 means

Options :

1. ✗ Thermal conductivity of the object is low
2. ✗ Thermal conductivity of the object does not change
3. ✓ Thermal conductivity of the object is high
4. ✗ Thermal radiation of the object is high

Question Number : 98 Question Id : 3330086098 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Specific heat is

Options :

1. ✓ The quantity of heat that is gained or lost by a unit mass of product to accomplish a unit change in temperature, without a change in state
2. ✗ The quantity of heat gained by a product with a change in state
3. ✗ The quantity of heat lost by a product with a change in state
4. ✗ The quantity of heat neither gained nor lost by a product

Question Number : 99 Question Id : 3330086099 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Plasmid is a

Options :

1. ✗ Protein present in flagella of bacteria
2. ✗ Outer membrane protein of bacteria
3. ✓ Extrachromosomal DNA present in bacteria

4. ✘ Lipopolysaccharide layer protein of bacteria

Question Number : 100 Question Id : 3330086100 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the correct match related to pyrometer

Options :

1. ✘ High Pressure

2. ✔ High Temperature

3. ✘ High Humidity

4. ✘ Low pressure

Question Number : 101 Question Id : 3330086101 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In steady state conditions, the flow behaviour is characterized by

Options :

1. ✘ Stress alone

2. ✘ Deformation rate alone

3. ✘ Independent of stress and deformation rate

4. ✔ Both stress and deformation rate

Question Number : 102 Question Id : 3330086102 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following statement is not correct

Options :

1. ✘ Prokaryotes lack Golgi apparatus

2. ✘ Prokaryotes contain 70S ribosome

3. ✘ Transcription and translation occur in cytoplasm of prokaryotes

4. ✔ The genetic material in prokaryotes is surrounded by nuclear membrane

Question Number : 103 Question Id : 3330086103 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A bacterial culture contained 32×10^6 cells after 2.5 hours of exponential growth. If the doubling time was 30 minutes, what was the initial population number in this culture?

Options :

1. ✘ 20×10^6 cells

2. ✘ 40×10^5 cells

3. ✘ 16×10^6 cells

4. ✔ 10×10^5 cells

Question Number : 104 Question Id : 3330086104 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ stain is used to detect endospores

Options :

1. ✘ Crystal violet

2. ✔ Malachite green

3. ✘ Eosin

4. ✘ Carbol Fuchsin

Question Number : 105 Question Id : 3330086105 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Triticale is a hybrid of

Options :

1. ✓ Wheat and rye
2. ✗ Oat and rye
3. ✗ Millet and wheat
4. ✗ Rice and wheat

Question Number : 106 Question Id : 3330086106 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Fatty acid important for brain development

Options :

1. ✗ Palmitic acid
2. ✗ Linoleic acid
3. ✗ Arachidonic acid
4. ✓ Decosahexaenoic acid

Question Number : 107 Question Id : 3330086107 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Beriberi is due to the deficiency of

Options :

1. ✘ Vitamin C
2. ✘ Vitamin B5
3. ✔ Vitamin B1
4. ✘ Vitamin B12

Question Number : 108 Question Id : 3330086108 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

World Food Day is celebrated every year on

Options :

1. ✘ September 16
2. ✔ October 16
3. ✘ November 16

4. ✘ December 16

Question Number : 109 Question Id : 3330086109 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Thyroxine contains _____ number of Iodine atoms

Options :

1. ✔ 4

2. ✘ 3

3. ✘ 2

4. ✘ 1

Question Number : 110 Question Id : 3330086110 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Avidin present in egg white is a _____

Options :

1. ✘ Fat

2. ✘ Carbohydrate

3. ✓ Glycoprotein

4. ✗ Biotin

Question Number : 111 Question Id : 3330086111 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Caffeine is _____

Options :

1. ✓ 1,3,7 trimethylxanthine

2. ✗ 1,3,7 tetramethylxanthine

3. ✗ 1,3,7 pentamethylxanthine

4. ✗ 1,3,7 hexamethylxanthine

Question Number : 112 Question Id : 3330086112 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Staphylococcus aureus

Options :

1. ✓ Gram-positive spherically shaped bacterium

2. ✘ Gram-negative spherically shaped bacterium

3. ✘ Gram-positive rod-shaped bacterium

4. ✘ Gram-negative rod-shaped bacterium

Question Number : 113 Question Id : 3330086113 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Christie–Atkins–Munch-Peterson test is related to

Options :

1. ✘ Detect potassium in fruits

2. ✘ Detect fat content

3. ✘ Detect food flavours

4. ✔ Identify bacteria

Question Number : 114 Question Id : 3330086114 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Mycoplasma is a

Options :

1. ✓ Bacteria without cell wall
2. ✗ Mold without cell wall
3. ✗ Yeast without cell wall
4. ✗ Virus

Question Number : 115 Question Id : 3330086115 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The fermented wine prepared from cashew apple is

Options :

1. ✗ Zinfandel
2. ✗ Porto wine
3. ✓ Feni
4. ✗ Sauvignon Blanc

Question Number : 116 Question Id : 3330086116 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

If the melting point of oils are high as compared to its surrounding temperature, then oils remain in

Options :

1. ✓ Liquid state
2. ✗ Solid state
3. ✗ Gaseous state
4. ✗ Vapour state

Question Number : 117 Question Id : 3330086117 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Evaporation of water is _____

Options :

1. ✗ An exothermic reaction
2. ✗ A process during which neither heat is released nor heat is absorbed
3. ✗ A process of chemical reaction
4. ✓ An endothermic reaction

Question Number : 118 Question Id : 3330086118 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Black bread mold is caused by

Options :

1. ✘ *Aspergillus niger*

2. ✘ *Saccharomyces cerevisiae*

3. ✔ *Rhizopus stolonifer*

4. ✘ *Pencillium notatum*

Question Number : 119 Question Id : 3330086119 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The pH of honey is

Options :

1. ✔ < 5.0

2. ✘ > 5.0

3. ✘

= 7.0

4. ✘ > 9.0

Question Number : 120 Question Id : 3330086120 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Corrin ring is present invitamin

Options :

1. ✘ Vitamin B1

2. ✘ Vitamin B2

3. ✔ Vitamin B12

4. ✘ Vitamin B5