

Bt404 solved important past papers for mid term by vu medical zone

SUBJECT bt404' (past papers)

CR

Tasha KHAN

VU MEDICAL ZONE

BIOTECHONLOGISTS AND ZOOLOGISTS

ADMINS: Hafiza Mubeen

Muhammad Nouman

Tasha Khan

Alaya sajjad

with vu medical zone

Bt404

1. What are probiotics. 2

Probiotics are live bacteria and yeasts that are good for your health, especially your digestive system. We usually think of bacteria as something that causes diseases. But

your body is full of bacteria, both good and bad. Probiotics are often called "good" or

"helpful" bacteria because they help keep your gut healthy.

- *Good bacteria are naturally found in your body. You can find probiotics in*

Created by: Hafiza Mubeen Muhammad Nouman Tasha Khan at vu medical zone
biotechnologists and zoologists

*some foods
and supplements.*

2. Write the name of Four Primary Food Security Research Needs.2

Four Primary Food Security Research Needs

- ? *Prevention, "Shields"*
- ? *Inactivation - neutralization technologies*
- ? *Security technologies*
- ? *In-line sensors*
- ? *Four Primary Food Security Research Needs*
- ? *Response and Recovery*
- ? *Laboratory support*
- ? *Rapid response research team*
- ? *Facility clean-up*
- ? *Four Primary Food Security Research Needs*
- ? *Detection Methodology*
- ? *Deployable, rapid field tests*
- ? *Laboratory-based screening tests*
- ? *Laboratory-based confirmatory tests*
- ? *Forensics*
- ? *Technology transfer*
- ? *Methods Validation*

3. What is the Response and Recovery of primary food security?3

Response and Recovery

- ? *Laboratory support*
- ? *Rapid response research team*
- ? *Facility clean-up*

4. 18. Types of probiotics? 3

Types of Probiotics

• *Many types of bacteria are classified as probiotics. They all have different benefits, but most come from two groups. Ask your doctor about which might best help you.*

Lactobacillus. This may be the most common probiotic. It's the one you'll find in yogurt and other fermented foods. Different strains can help with diarrhea and may help with people who can't digest lactose, the sugar in milk.

Bifidobacterium. You can also find it in some dairy products. It may help ease the symptoms of irritable bowel syndrome (IBS) and some other conditions.

- *Saccharomyces boulardii* is a yeast found in probiotics. It appears to help fight diarrhea and other digestive problems.

5. Differentiate food borne infections and intoxication? 5

Food borne infections vs. intoxication

Infections

- Bacterial / Viral / parasite
- Invade and or multiply in lining of intestine
- Incubation period- hours to days
- S/s – Diarrhea , nausea, vomiting , abdominal cramps, fever
- Communicable-spreads from person to person
- Factors-inadequate cooking, cross contamination , poor personal hygiene , bare hand contact

Intoxications

- toxins (natural / preformed bacterial / chemical)
- No invasion or multiplication
- Incubation period- minutes to hours
- S/s – Vomiting , nausea, diarrhea , diplopia, weakness, resp. failure , numbness, sensory/motor dysfunction Not communicable
- Factors-inadequate cooking , improper handling temperatures

6. What do probiotics do? 5

What Do They Do?

- Probiotics help move food through your gut. Researchers are still trying to figure out which are best for certain health problems. Some common conditions they treat are:

- Irritable bowel syndrome
- Inflammatory bowel disease (IBD)
- Infectious diarrhea (caused by viruses, bacteria, or parasites)
- Antibiotic-related diarrhea There is also some research to show they help with problems in other parts of your body.

For example, some people say they have helped with:

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- *Skin conditions, like eczema*
- *Urinary and vaginal health*
- *Preventing allergies and colds*
- *Oral health*

MCQs

**Chemical substances found in the largest amounts in food:
water**

2. – *Water, Carbohydrates – Fats – Protein*
2. *temporary hardness may be softened by boiling*
3. *Dextrins – Produced when starch molecules are partially broken down by enzymes, acid, or heat.*
4. *Beta-glucans • Associated with reduced risk of heart disease*
5. *Polyunsaturated fatty acids with double bond between 3rd and 4th carbon from the left on the structure.*
6. *Probiotics are live bacteria and yeasts*
7. *When you lose "good" bacteria in your body (like after you take antibiotics, for example), probiotics can help replace them.*
8. *Saccharomyces boulardii is a yeast found in probiotics.*
9. *Food additives are substances added to products to perform specific technological functions*
10. *the production of alcohol when yeast breaks down fruit sugars in grapes*
11. *Alcoholic beverages – glucose is fermented by yeast enzymes*
12. *Raw and most processed foods normally contain many types of molds, yeasts and bacteria*
13. *Raw and most processed foods normally contain many types of molds, yeasts and bacteria*
14. *Gene therapy – replacing defective genes with new functional genes. Still developing.*
15. *Must take samples from 1- Patients 2-Handlers 3- Food Leftovers 4- Utensils and boards, storage places*
16. *Molecular techniques – new, sensitive and specific*
17. *immunological – Elisa*
18. *Molecular techniques– Polymerase Chain Reaction (PCR)*
19. *Cook poultry and eggs thoroughly – Internal temperature of 80oC*

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\ 7. Relationship of microorganisms with food?

Relationship of Microorganisms and food

- **Pathogenic or Toxogenic: cause disease**
- **Beneficial/ desirable(make food)**
 - **Lactobacilli bacteria in fermented food(yoghurt, pickles)**
 - **Yeast Saccharomyces in Bread and baking**
- **Deteriorated/ undesirable**
 - **Non-pathogenic: Spoilage**
 - **Fungi, Pseudomonas, Proteus, Bacillus**

Conditions for Spoilage

- **Water, pH ,physical structure, oxygen, temperature. Spoilage of food**
- **Organisms that cause spoilage**
- **Pseudomonas , Proteus, Serratia, lactobacillus micrococcus, fungi such as Aspergillus, Rhizopus, yeast.**
- **Spoilage appear as greening , moldy appearance, Rotting, discoloration, souring , bad smell.**

8. What is predominant microorganism?

C- Predominant Microorganisms

Unspoiled, nonsterile food generally contains many types of microorganisms from different genera.

When the same food is spoiled, it is found to contain predominantly one or two types and they may not even be present initially in the highest numbers in the unspoiled fresh product.

9. What is food safety?

What is food safety?

- **Potential health risks from food consumption**
 - **microbiological, viral and parasitic concerns. Potential health risks from food consumption**
 - **microbiological, viral and parasitic concerns**
 - **hormone residues (growth promoters)**

Potential health risks from food consumption

- **microbiological, viral and parasitic concerns**

- *hormone residues (growth promoters)*
- *animal drugs (antibiotics)*

11. What is steam pasteurization?

Steam Pasteurization: whole carcass treatment; brings surface to about 200oF;

extremely effective; expensive and water and energy intensive

12. What is food additives?

Food additives are substances added to products to perform specific technological functions. These functions include preserving, i.e. increasing shelf-life or inhibiting the growth of pathogens, or adding colouring and flavouring to food for interest and variety.

- *There are over 300 permitted additives that can be used in the UK. Flavourings are not included in this figure, as there are over 3,000 flavouring components in UK use, in many different combinations. International organisations provide advice on the safety of flavourings.*

13. explain food borne infections vs. intoxication..

Food borne infections vs. intoxication

Infections

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"helpful" bacteria because they help keep your gut healthy.

- *Good bacteria are naturally found in your body. You can find probiotics in some foods and supplements.*
- *It's only been since about the mid-1990s that people have wanted to know more about probiotics and their health benefits. Doctors often suggest them to help with digestive problems. And because of their newfound fame, you can find them in everything from yogurt to chocolate.*

15.predominant microorganism.?

Predominant Microorganisms

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17. Relationship of Microorganisms and food.

Relationship of Microorganisms and food

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smell

Mcqs

Food composition tell us about? **protein, carbohydrates, fat, vitamins and minerals**

Water activity of honey is: **0.75**

Which amino acid act as helix breaker? **Proline**

Oxygen can participate with **4** maximum hydrogen.

Which one is heteropolysaccharides. **hyaluronic acid, chondroitin**

Moisture content in milk: **87**

Nutrition energy value of protein: **17 kJ/g or 4 kcal/g**

Non essential amino acid is.....**Proline**

Gelatin and zein contain about.....**alanine 9%**

Non reducing disaccharides are.....**Sucrose**

Raffinose is composed of**Galactose, glucose, fructose**

Animal protein contain....**2-4%**

formula of carbohydrate--- **(CH₂O)_n,**

composition of molasses is----- **high amount of fructose**

type 2 b turn...**glycine.. required on position 3,**

18.Name of Four type of carbohydrates (2)

Ans: 1. **Monosaccharides**

Disaccharides

Oligosaccharides

Polysaccharides

19.What is the occurrence of glutamic acid (2)

Ans: •**First isolated from wheat gluten by Ritthausen in 1866.** •**It is abundant in most proteins, but is particularly high in milk proteins (21.7%), wheat (31.4%), corn (18.4%) and soya (18.5%).** •**Molasses also contains relatively high amounts of glutamic acid.**

Write three name of basic amino acids. (3)

Ans: **Lysine, arginine, histidine**

20.What is fibrous protein. Write its two examples. (3)

Ans: . **Fibrous proteins** •**Entire peptide chain is packed or arranged within a single regular structure for a variety of fibrous proteins.** •**Stabilization of these structures is achieved by intermolecular bonding (electrostatic interaction and disulfide linkages, but primarily hydrogen bonds and hydrophobic interactions).**

Examples • wool keratin (α -helix), silk fibroin (β -sheet structure) and collagen (a triple helix)

21 What is beta turn. Describe its type. (5)

Ans: β Turns • Also known as β -bends, tight turns, reverse turns • Are a type of non-regular secondary structure in proteins that cause a change in direction of the polypeptide chain. • They occur at hairpin corners where the peptide chain changes direction abruptly. • Such corners involve four amino acid residues often including proline and glycine.

• Several types of turns are known; of greatest importance are Type I (42% of 421 examined turns) Type II (15%) Type III (18%)

Type I β -turns • All amino acid residues are allowed, with the exception of proline in position 3. Type II β -turns • In type II, glycine is required in position 3. Type III β -turns • In type III, all amino acids are allowed.

22. Classification of amino acid on the basis of nutrition. Give two example of each type (5)

Ans: • Classification of amino acids on the basis of nutrition:

Essential amino acids: • These amino acids are not synthesized in cells of human beings, so these should be essentially present in diet. • Phenylalanine, valine, threonine, tryptophan, isoleucine, methionine, histidine, arginine, leucine, lysine • Arginine is conditional amino acids (essential for infants, non essential for adults)

Non essential amino acids: • These amino acids can be synthesized in body, so need not be included in diet. • Glycine, alanine, serine, cysteine, asparagine, glutamine, aspartic acid, glutamic acid, tyrosine, proline

23. Types of secondary structure of protein?

Ans: Alpha helix • In an α helix, the carbonyl (C=O) of one amino acid is hydrogen bonded to the amino H (N-H) of an amino acid that is four down the chain.

• In a β pleated sheet, two or more segments of a polypeptide chain line up next to each other, forming a sheet-like structure held together by hydrogen bonds.

• The hydrogen bonding in a β -sheet is between strands (interstrand) rather than within strands (intra-strand).

24. Forces that rise tertiary structure of protein?

Ans: The forces that give rise to the tertiary structure of a protein are Ionic bonding, Hydrogen bonding, Hydrophobic interaction, Disulfide bonds

25. Reducing disaccharides?

Ans: 1. Reducing disaccharides in which one monosaccharide, the reducing sugar of the pair, still has a free hemiacetal unit that can perform as a reducing aldehyde group

Examples • Cellobiose • Maltose

26. Define water activity?

Ans: • "The partial vapor pressure of water in a substance divided by the standard state partial vapor pressure of water."

With reference to food it is defined as

Where

$$a_w = P/P_0$$

P = partial vapor pressure of food moisture at temperature T

P₀ = saturation vapor pressure of pure water at T

Pure distilled water has a water activity of exactly one.

Higher aw substances tend to support more microorganisms.

Bacteria usually require at least 0.91, and fungi at least 0.7.

Remember

