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(University of Choice)

MASINDE MULIROUNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND SEMISTER EXAMINATION

FOR THE DEGREE

OF

HUMAN NUTRITION AND DIETETICS

COURSE CODE: HND 314

COURSE TITLE: FOOD BIOTECHNOLOGY

DATE: 22/04/2022 **TIME: 3-5pm**

INSTRUCTIONS TO CANDIDATES

Answer all questions in SECTION A and B
Answer TWO questions in SECTION C
Read additional instructions under various sections

Section A: ANSWER ALL QUESTIONS (10 MARKS)

1. Most foods derived from genetically modified crops contain
   A. The same number of genes as foods produced from convectional crops.
   B. The same number of genes as foods produced from hybrid crops.
   C. One or two additional genes.
   D. Hundreds of additional genes.
2. _____ is used by companies for bread making and alcohol production?
   A. Plant cells
   B. Malt
   C. Yeast
   D. Bacteria
3. A substance intentionally added to food that preserves flavor and improves taste is called?
   A. Food adulterant.
   B. Food additive.
   C. Food contaminant
   D. Food material
4. All of the following enzymes have plant source **EXCEPT**?
   A. Alpha amalyse
   B. Papin
   C. Isomerase
   D. Beta glucanase
5. Which of the following bacteria is involved in food discoluration
   A. Lactobacillus
   B. Micrococcus
   C. Flavobacterium
   D. None of the above
6. Which of the following enzyme is used to tenderize meat?
   A. Alkaline protease
   B. Pancreatic enzymes
   C. Papain

D. Rennet

7. How long has mankind been performing biotechnology?
   A. 6000 years
   B. 2000 years
   C. 200 years
   D. 40 years
8. The following are nutritive sweeteners which one is not?
   A. corn syrup.
   B. glucose.
   C. sorbital.
   D. saffron
9. How do thickeners improve food products
   A. To prevent spoilage due to oxygenation
   B. They preserve the flavor of the product
   C. They increase the viscosity of the product
   D. They keep food from drying out
10. Bacteria like lactobacillus produce what compound required for the production of sauerkraut, yoghurt, sourdough
    A. Carbon dioxide
    B. Lactic acid
    C. Yeast
    D. Baking soda

SECTIONB:THIS SECTION CONTAINS FIVE QUESTIONS EACH SIX MARKS.

ANSWER *ALL*QUESTIONS (30 MARKS)

11. a) List **ANY THREE** functions of food additives. (3 marks)
    b) Explain **ANY THREE** adverse effects of food additives. (3 marks)
12. a) Explain how good bacteria causes flatulence? (3 marks)
    b) List **ANY THREE** known benefits of fermented foods. (3 marks)
13. a) Explain **ANY TWO** health concerns associated with genetically modified foods.(2 marks)
    b) Name **ANY FOUR** foods that are genetically modified? (4 marks)

14. a) What is the difference between traditional breeding and recombinant DNA technology? (4 marks)

    b) List **ANY TWO** microbial agents food companies use for food preservation. (2 mark)

15.a) List **any two** enzymes used in the production of dairy products.(2 marks)

    b)What are the functions of the enzymes mentioned above?(2 marks)

    c) What is the difference between natural and synthetic colorants? (2marks)

SECTION C:THIS SECTION CONTAINS THREE QUESTIONS EACH 15 MARKS. ANSWERS*ANY TWO* QUESTIONS (30 MARKS)

16. Genetic engineering has numerous benefits in food production, Discuss. (15 marks)
17. a)Fermentation is an age old food biotechnology technique. Using examples explain how foods in the African traditional setting were fermented. (10 marks)

    b) Not all fermented foods contain probiotics, explain. (5 marks)
18. Genetically modified foods have generated major concerns around food safety. Discuss the issues raised by experts in relation to health. (15 marks)