FOOD SCIENCE TEST
(by FNaveed27)

Names: _____

School/Team Name:_____

90 total questions-

1-60 multiple choice(1 point each)

60-80 short answer(3 points each)

80-90 long answer(5 points each)

Instructions:

Circle the answer and write it in the blank space for multiple choice.

Write the answers underneath the questions for short and long answers

Part 1: Multiple Choice (1 point each)

Choose the *best* answer

1) ___ What process is kimchi made through?

a) Bottling
b) Lyophilization
c) Fermentation
d) Radiation

2) ___ What is the science of fermentation known as?

a) Gerontology
b) Alology
c) Axiology
d) Zymology

3) ___ What is the product of alcoholic fermentation?

a) Glucose and ethyl alcohol
b) Ethyl alcohol and carbon dioxide
c) NAD+ and lactic acid
d) Glucose and Yeast

4) ___ Which of these processes produces the most ATP?

a) Glycolysis
b) Tricarboxylic Acid Cycle
c) Oxidative Phosphorylation

d) Electron Transport Chain

5) ___ Failing to remove microbes from equipment and storing vessels can result in the multiplication of harmful organisms, putting the risk of food-borne illnesses.

a) True
b) False

6) ___ Are all the products of fermentations useful to humans?

a) Yes
b) No

7) ___ How old is the process of fermentation?

a) 10,000 years
b) 1 year
c) 20,000 years
d) 100,000 years

8) ___ Fermented food is not healthy and adds harmful bacteria and enzymes to your overall intestinal flora.

a) True
b) False

9) ___ Which of the following three factors affect fermentation?

a) Bloating, overweight, temperature

b) Yeast, wort nutrients, temperature

c) Glucose, yeast, temperature

d) Eating habits, climate, yeast

10) ___ How long does the process of fermentation take?

a) 2-3 weeks

b) 4-5 weeks

c) 1-2 weeks

d) One year

11) ___ What bacteria are typically used to prepare kombucha?

a) Acetic acid bacteria and osmophilic yeast

b) Glucose and Yeast

c) Leuconostoc, Weissella

d) Osmophilic yeast and lactobacillus

12) ___ What is Adenosine triphosphate?

a) simple sugar

b) disaccharide

c) organic compound

d) macromolecule

13) ____ Fermentation is a(n)…

a) excretion process

b) digestive process

c) respiration process

d) metabolic process

14) ___ Humans have used fermentation to produce foodstuffs and beverages since the Neolithic age.

a) true

b) false

15) ___ Which sugar has the highest rate of fermentation?

a) sucrose

b) glucose

c) fructose

d) galactose

16) ___ Yeast cannot reproduce during the fermentation or anaerobic stage.

a) true

b) false

17) ___ Fermentation will stop altogether once ____ concentrations become too high.

a) carbon dioxide

b) yeast

c) sugar

d) oxygen

18) ___ Fermentation is anaerobic.

a) true

b) false

19) ___ What does lactic acid build-up feel like?

a) It can make you feel refreshed

b) It can make you lazy

c) It can make your muscles more flexible and more agile

d) It can make you sore and cramp up

20) ___ Why is fermentation necessary?

a) It makes you healthy

b) It is a necessary process for aerobic organisms to produce energy

c) It is a good process for killing bacteria

d) It is a necessary process for anaerobic organisms to produce energy

21) ___ Sauerkraut is made by packing ____ with salt and letting it ferment.

a) carrots

b) lettuce

c) cabbage

d) eggplants

22) ____ The citric acid cycle is also known as the:

a) homolactic cycle

b) cellular cycle

c) metabolic cycle

d) krebs cycle

23) ___ Sucrose is found in:

a) animals
b) plants
c) muscles
d) beer

24) ___ Bacteria that can grow with or without oxygen are called:

a) anaerobes
b) yeasts
c) facultative anaerobes
b) glycogen

25) ___ Fermentation is the process that is used to produce _____ from sugar.

a) enzymes
b) glucose
c) ATP
d) alcohol

26) ___ Fermentation is _____, which means that it will create its own heat.

a) endothermic
b) self-heating
c) exothermic
d) exothermal

27) ___ Fermentation includes processes that use organic material to regenerate NAD+ from ____.

a) nadh
b) nadp+
c) nmn
d) nadph

28) ___ Mother of vinegar is a substance composed of a form of _____ and _____ bacteria that develops on fermenting alcoholic liquids.

a) yeast and glucose
b) cellulose and acetic acid
c) lactic acid and nadh
d) CO_2 and cellulose

29) ___ Pasteurization is the process of heating any food or liquid to kill _____ bacteria to make the food safe to eat.

a) actinobacteria
b) proteobacteria
c) pathogenic
d) fibrobacteres

30) ___ Chemical additives do all of the following EXCEPT:

a) preserve flavor
b) inhibit microbial growth
c) prevent spoilage
d) slow rancidification

31) ___ The citric acid cycle is called a cycle because the starting molecule, _____, is regenerated at the end of the cycle.

a) Abscisic acid
b) Alanine
c) Oxaloacetate
d) Aspartame

32) ___ The citric acid cycle is regulated primarily by the concentration of ____ and _____.

a) Adenine and ATP
b) NADH Adenine
c) NAD+ and ATP
d) NADH and ATP

33) ___ The last ____ reactions of glycolysis constitute phase II.

a) three
b) two
c) six
d) five

34) ___ Sugars belong to the family of organic compounds called_____.

a) Proteins
b) Fructoses
c) Carbohydrates
d) Maltoses

35) ___ The anaerobic conversion of pyruvic acid into lactic acid with concomitant oxidation of NADH to NAD is an example of:

a) homolactic fermentation
b) aerobic respiration
c) heterolactic fermentation
d) ethanol fermentation

36) ___ Which is the correct equation for aerobic respiration in humans?

a) glucose + oxygen → carbon dioxide + water
b) glucose + oxygen → lactic acid
c) glucose → lactic acid

37) ___ What is the maximum value of water activity?

a) 1.5
b) 2.0
c) 1.0
d) 2.5

38) ___ Which of the following can reduce water activity?

a) salt
b) heat
c) citric acid
d) carbon

39) ___ Acidity in food:

a) influences the growth of microorganisms
b) is dangerous to consume
c) changes the chemical make-up of the food
d) influences how long the food can be preserved

40) ___ If the Ph of the food is below _____, then it is considered and acidified food.

a) 4.6
b) 3.9
c) 5.7
d) 7

41) ___ The two steps of alcohol fermentation are:

a) electron chain process and regeneration
b) glycolysis and NADH regeneration
c) catabolism and MADh regeneration
d) lactic acid fermentation and glycolysis

42) ___ 1 NADH is equal to ____ atps.

a) 1
b) 2
c) 3
d) 5

43) ___ As the water activity (Aw) increases, a food's ability to support the growth of bacteria, yeasts, and mold _____.

a) increases
b) decreases
c) stays the same

44) ___ Anaerobic digestions leads to very high levels of _____.

a) purification
b) respiration
c) metabolism
d) digestion

45) ___ The following actions relate to the bound water except _____.

a) bound to molecules
b) loses freedom to move
c) held inside cells
d) does not retain properties of free water

46) ___ When you add salt to water, the water molecules need more energy to produce enough pressure to escape the boundary of the liquid.

a) true
b) false

47) ___ The starting point for the critic acid cycle is:

a) FADH2
b) CO2
c) acetyl-CoA
d) pyruvate

48) ___ The tenth step of the Krebs cycle:

a) ends it
b) restarts it
c) regenerates it
d) none of the above

49) ___ Oxidize acetate is a ___ carbon molecule.

a) 2
b) 5
c) 3

d) 4

50) ___ At the end of each citric acid cycle, the four-carbon oxaloacetate has been regenerated, and the cycle ends.

a) true
b) false

51) ___ The shape of a stamp indicating meat safety is a:

a) circle
b) triangle
c) square
d) hexagon

52) ___ Which of the following is not true about galactose?

a) Galactose is synthesized in the body
b) Galactose is a monosaccharide
c) Galactose is one of the monosaccharide that makes up the disaccharide lactose
d) Galactose is much sweeter than glucose

53) ___ Which sugar or sugars make up sucrose?

a) glucose
b) fructose
c) galactose
d) lactose

54) ___ Which of the following is the chemical formula for glucose?

a) $C_{12}H_{22}O_{11}$

b) $C_6H_{12}O_6$

c) $C_{12}H_{22}O_{11}$

d) $C_{12}H_{22}O_{11}$

55) ____ The opposite of _____ is dehydration.

a) exsiccation

b) desiccation

c) parchedness.

d) hydrolysis

56) ____ What chemical test can be used to detect starch in a sample?

a) Iodine test

b) Carbylamine reaction

c) Iodoform reaction

d) Schiff test

57) ___ People with milk allergy are usually allergic to the _____ in the milk.

a) fat

b) minerals

c) proteins

d) carbohydrates

58) ___ Which of the following food does not involve the process of fermentation?

a) wine

b) beer

c) cider

d) tempeh

e) none of the above

59) ___ How many bonds are in saturated fats?

a) single bond
b) double bonds
c) triple bonds
d) 3+ bonds

60) ___ Which of the following foods contain saturated fat?

a) beef
b) fish
c) chicken
d) turkey
e) none of the above

Part 2: Short Answer (3 points each)

Part a: fill in the blanks

61. Alcohol fermentation is a biochemical process in which sugars such as fructose, sucrose, and glucose are converted into small amounts of ____, along with producing _____ and _____ during the process.

62. The three stages of fermentation are: _____, _____ and _____.

63. The citric acid cycle is located in the _____.

64. NADH is usually converted into ____ in the mitochondrial electron transport chain if oxygen is present.

65. During glycolysis, one glucose molecule is converted to two ____ molecules.

Part b: matching

Use the words bank to help you

Words bank: *Carbohydrates*, *saturated*, *monounsaturated*, *polyunsaturated*, *monosaccharide*, *protein*, *disaccharide*, *lipid*, *polysaccharides*, *reducing sugars*.

66. ___ Examples: glucose, lactose, fructose
67. ___ A sugar formed from two monosaccharides
68. ___ Carbon along with hydrogen and oxygen in the same ratio as water
69. ___ Any of a large group of nitrogenous organic compounds that are essential constituents of living things
70. ___ Sugar containing one sugar unit
71. ___ Fat that only has one double bond in the triglyceride
72. ___ Contain only hydrogen, oxygen, and carbon and most common form in foods as a triglyceride
73. ___ Examples: starch, cellulose, pectin
74. ___ No double bonds in any of the fatty acid chains
75. ___ fat that has more than one double bond in the triglyceride

Part c: Find the type of process using the clues given

	Process	Example Given
76.	Ethanol Fermentation	Mead produced from honey
77.	Lactic Acid Fermentation	The production of yogurt
78.	Aerobic Respiration	Marathon running
79.	Homolactic Fermentation	Pyruvate reduced to lactate
80.	Heterolactic Fermentation	A key enzyme in the pathway is phosphoketolase

Part 3: Long answer (5 points each)

81. What is food fermentation?

82. What are the five main purposes of food preservation?

83. How is fermentation measured?

84. What are the two types of food fermentation and describe both of them?

85. How do you know that fermentation is done for the following items? Beer, krausen

86. Why does fermentation occur?

87. Why do we need lactic acid fermentation?

88. What is the difference between NAD+ and NADH?

89. What is the difference between activity and water content?

90: What is the difference between anaerobic and aerobic biodegradation?