

B - Food Science - National Scilympiad Practice - Nov 7 Country-wide SO Practice - 11-07-2020

1. (1.00 pts) Yeast are

- A) eukaryotic
- B) prokaryotic
- C) bacteria
- D) lactic acid

2. (1.00 pts) What causes bread to rise?

- A) yeast increase in size
- B) yeast produce carbon dioxide
- C) yeast produce oxygen
- D) yeast act as a catalyst

3. (1.00 pts) Pickling produces a pH of

- A) 7.4 or higher
- B) neutral
- C) 4.6 or lower
- D) between 4.6 and 7.4

4. (1.00 pts) Density is defined as

- A) The amount of space an object occupies
- B) The compactness of the matter in an object
- C) The amount of matter in an object
- D) The action of gravity on the matter in an object

5. (1.00 pts) The extraction of energy from _____ in the absence of oxygen is fermentation

- A) proteins
- B) fats
- C) carbohydrates
- D) ATP

6. (1.00 pts) Zymology is the study of

- A) yeast
- B) pickling
- C) the citric acid cycle
- D) fermentation

7. (1.00 pts) How many molecules of carbon dioxide are released during the citric acid cycle?

- A) 1
- B) 2
- C) 3
- D) 4

8. (1.00 pts) What is the common name of acetic acid?

- A) vinegar
- B) brine
- C) kimchi
- D) kahm yeast

9. (1.00 pts) What does ATP stand for?

- A) Adenosine Trioxidate
- B) Adenosine Triprotease
- C) Adenosine Triphosphate
- D) Adenosine Trilipase

10. (1.00 pts) What is purpose of ATP?

- A) Aid in fermentation
- B) Store and transport energy
- C) Metabolize sugars
- D) Catabolize cells

11. (1.00 pts) What is glucose?

- A) carbohydrate
- B) amino acid
- C) lipid
- D) enzyme

12. (1.00 pts) In general, what is the role of an enzyme?

- A) Reduce anaerobic respiration
- B) Produce cellular structures
- C) Be broken apart to produce energy
- D) Act as a catalyst

13. (1.00 pts) Which of the following foods is considered to have probiotics?

- A) pickles
- B) sauerkraut
- C) yogurt
- D) all of these

14. (1.00 pts) How many ATP are produced from each molecule of glucose during anaerobic respiration?

- A) 2
- B) 4
- C) 6
- D) 32

15. (1.00 pts) Raw material to make fuel

- A) biomaterials
- B) feedstocks
- C) biomass
- D) electrolyzers

16. (1.00 pts) What alcohol is produced during yeast fermentation?

- A) methanol
- B) isopropanol
- C) butanol
- D) ethanol

17. (1.00 pts) What type of bacteria ferments milk to produce yogurt?

- A) lactobacillus
- B) cyanobacteria
- C) acidobacteria
- D) spirochaetes

18. (1.00 pts) What sugar in yogurt does the bacteria ferment?

- A) sucrose

- B) lactose
- C) maltose
- D) fructose

19. (1.00 pts) What is a probiotic?

- A) bacteria
- B) yeast
- C) vitamin
- D) pathogen

20. (1.00 pts) The ratio between the vapor pressure of a food compared to the vapor pressure of distilled water under the same conditions is

- A) sorption behavior
- B) humidity
- C) water activity
- D) sorption isotherms

21. (1.00 pts) Which of the following bacteria is typically used to prepare Kombucha?

- A) osmophilic bacteria
- B) zygosaccaromyces
- C) lactobacillus
- D) acetobacteraceae

22. (3.00 pts) A pickle has a mass of 10.5 g. After completely drying, the pickle has a mass of 5.6 g. Determine the moisture content (MC) of the pickle.

- A) 4.9%
- B) 47%
- C) 4.7%
- D) 49%

23. (1.00 pts) What moisture content in food is considered prone to microbial growth? - NOTE both answers A and B were awarded points

- A) above 50%
- B) above 45%
- C) above 40%
- D) above 35%

24. (1.00 pts) What water activity level is considered to inhibit almost all microbial activity?

- A) below 0.6
- B) below 0.5

- C) below 0.4
- D) below 0.3

25. (1.00 pts) At what water activity level must a food be refrigerated or vacuumed sealed?

- A) above 0.6
- B) above 0.75
- C) above 0.80
- D) above 0.85

26. (1.00 pts) What molecule begins the citric acid cycle?

- A) glucose
- B) pyruvate
- C) acetyl CoA
- D) amino acid

27. (1.00 pts) What is the main ingredient in kimchi?

- A) cucumbers
- B) cabbage
- C) carrots
- D) zucchini

28. (1.00 pts) What is unique about sourdough bread?

- A) It contains no wheat
- B) The dough is fermented by lactobacilli and yeast
- C) It contains no yeast
- D) Yogurt gives it its sour taste

29. (1.00 pts) Which of the following is NOT a typical ingredient of Kombucha?

- A) vinegar
- B) tea
- C) sugar
- D) non-chlorinated water

30. (1.00 pts) Which fermented food uses SCOBY as part of the fermentation process?

- A) kimchi
- B) sourdough bread
- C) sauerkraut

- D) Kombucha

31. (1.00 pts) What is unique about homolactic fermentation? NOTE - Both A and C are correct and either answer were awarded points

- A) It does not produce alcohol
 B) It takes place in the presence of oxygen
 C) It does not produce carbon dioxide
 D) It requires a catalyst

32. (1.00 pts) Which of the following vitamins are NOT produced during microbial fermentation?

- A) B2
 B) E
 C) D2
 D) K2

33. (1.00 pts) Which federal agency is responsible for meat and poultry food safety?

- A) FDC
 B) USDA
 C) FTC
 D) FP&L

34. (1.00 pts) Which of the following bacteria is used to ferment pickles?

- A) Lactobacillus
 B) Leuconostoc plantarum
 C) Saccharomyces cerevisiae
 D) Acetobacteraceae

35. (1.00 pts) Which of the following is a key molecule in the citric acid cycle used to determine tis rate?

- A) oxopenanedioic acid
 B) alpha-ketoglutarate
 C) succinyl-CoA
 D) glutamine

36. (1.00 pts) What is transferred during an oxidation/reduction reaction?

- A) protons
 B) oxygen
 C) electrons
 D) carbon dioxide

37. (1.00 pts) Fermentation of which of the following foods produces propionic acid as a byproduct?

- A) yogurt
- B) cheddar cheese
- C) beer
- D) Swiss cheese

38. (1.00 pts) Most bacteria prefer what kind of conditions for growth?

- A) Dry
- B) Low pH
- C) Wet
- D) High pH

39. (1.00 pts) The breakdown of glucose by enzymes, releasing energy and pyruvic acid

- A) glycolysis
- B) anabolism
- C) phosphorylation
- D) fermentation

40. (1.00 pts) Fermentation of which of the following produces ethanol as a byproduct?

- A) yogurt
- B) cheddar cheese
- C) beer
- D) Swiss cheese

41. (1.00 pts) Life without air would be

- A) reductional
- B) free from oxidative damage
- C) impossible
- D) anaerobic

42. (1.00 pts) Which of the following statements about the citric acid cycle is the most accurate?

- A) It occurs as part of both cellular respiration and photosynthesis
- B) Oxygen and water are produced
- C) It is the first step in cellular respiration
- D) Not all living things engage in the citric acid cycle

43. (1.00 pts) Which of the following is NOT a product of the citric acid cycle?

- A) Carbon dioxide
- B) NADH
- C) NAD⁺
- D) FADH₂

44. (1.00 pts) When do organisms use anaerobic pathways to generate energy?

- A) When there is not enough oxygen to undergo aerobic cellular respiration
- B) When the citric acid cycle is moving too slowly
- C) When glucose is available as a reactant
- D) When the cytoplasm is unavailable for cellular respiration

45. (1.00 pts) After a hard workout, which of the following causes muscles to be sore?

- A) alcohol fermentation
- B) lactic acid fermentation
- C) photosynthesis
- D) citric acid cycle

46. (1.00 pts) Which energy producing mechanism requires glucose?

- A) anaerobic respiration
- B) aerobic respiration
- C) both anaerobic and aerobic
- D) neither anaerobic nor aerobic

47. (1.00 pts) Which energy producing mechanism partially breaks down glucose?

- A) anaerobic respiration
- B) aerobic respiration
- C) both anaerobic and aerobic
- D) neither anaerobic nor aerobic

48. (1.00 pts) Which energy producing mechanism produces ATP?

- A) anaerobic respiration
- B) aerobic respiration
- C) both anaerobic and aerobic
- D) neither anaerobic nor aerobic

49. (1.00 pts) pH is a logarithmic scale

True False

50. (1.00 pts) Sucrose is table sugar

True False

51. (1.00 pts) Kefir is made from fermented grain

True False

52. (1.00 pts) Aerobic respiration will NOT result in fermentation

True False

53. (1.00 pts) Homolactic fermentation produces one form of acid

True False

54. (1.00 pts) Ethanol fermentation converts proteins to ethanol and carbon dioxide

True False

55. (1.00 pts) Chemists and engineers are working to make renewable feedstocks

True False

56. (1.00 pts) Glycogen is a simple sugar

True False

57. (1.00 pts) The chemical structure of sugars is a ring(s)

True False

58. (1.00 pts) One goal of food preservation is to prevent the growth of bacteria

True False

59. (1.00 pts) milliliters per grams is a good unit for density

True False

60. (1.00 pts) Canned tomatoes are an acidified food

True False

61. (1.00 pts) John L mason invented a practical glass jar for home canning in 1858

True False

62. (1.00 pts) pH is a measure of free hydrogen ion concentration

True False

63. (1.00 pts) Clostridium botulinum is the microorganism of most concern in acidified food.

True False

64. (1.00 pts) Buttermilk is fermented milk

True False

65. (1.00 pts) Some yeasts such as those in the genus Cryptococcus are pathogens to humans.

True False

66. (1.00 pts) Streptococcus thermophilus is a type of yeast

True False

67. (1.00 pts) Louis Pasteur discovered fermentation could be stopped by adding oxygen.

True False

68. (1.00 pts) NADH and NAD⁺ are enzymes in the citric acid cycle

True False

69. (1.00 pts) NAD stands for Nicotinamide Adenine Dinucleotide

True False

70. (1.00 pts) NADH is the reduced form of NAD⁺

True False

71. (1.00 pts) Lactic acid is a byproduct of the fermentation of cheddar cheese

- True False

72. (3.00 pts) Yeast is added to a bottle of warm water with sugar in it. Which of the following would you expect to see

- A) No change
 B) The bottle will heat up (exothermic reaction)
 C) Bubbles will form
 D) The bottle will cool down (endothermic reaction)
 E) B and C are correct
 F) C and D are correct

73. (3.00 pts) What is the difference between fermentation pickling and chemical pickling?

- A) One uses brine while the other uses vinegar
 B) One produces lactic acid the other does not
 C) In one lactobacillus grows and in the other lactobacillus is killed
 D) None of the above
 E) A, B and C are correct

74. (3.00 pts) What is the source of lactobacillus and sugar in fermented pickles?

- A) SCOBY
 B) They are added in dehydrated form
 C) Cucumbers
 D) Lactobacillus is not involved in fermenting pickles