Dayanand Science College, Latur

Department of Biotechnology

Class: M.Sc. BT S.Y. (sem-IV)

Subject: Applied biotechnology (BT-XIX)

 Teacher – Bansode S. M.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 1. Which of the following is an example of bacterial and yeast polysaccharide?
a) Starch
b) Glycogen
c) Cellulose
d) Dextrans

2. In which of the following, glucose residues are linked by β1 & 4 glycosidic bonds?
a) Amylose
b) Starch
c) Cellulose
d) Glycogen

3. What is the chemical difference between cellulose and chitin?
a) Replacement of the hydroxyl group at C2 with an acetylated amino group
b) Replacement of the hydroxyl group at C3 with an acetylated amino group
c) Replacement of the hydroxyl group at C4 with an acetylated amino group
d) Replacement of the hydroxyl group at C5 with an acetylated amino group

4. When all the monosaccharides in a polysaccharide are same type, such type of a polysaccharide is called a \_\_\_\_\_\_\_\_\_\_\_
a) Glycogen
b)Homoglycan

c) Heteroglycan
d) Oligosaccharide

5. In which of the following forms, glucose is stored in plants?
a) Glycogen
b) Starch
c) Dextrin
d) Cellulose

6. In which of the following forms, glucose is stored in the liver?
a) Glycogen
b) Starch
c) Dextrin
d) Cellulose

7. Which of the following are the storage polysaccharides?
a) Glycogen
b) Cellulose
c) Chitin
d) Glucose

8. Which of the following are the structural polysaccharides?
a) Glycogen
b) Starch
c) Chitin
d) Glucose

9. Which of the following is an analogous to starch?
a) Cellulose
b) Glycogen
c) Sucrose
d) Chitin

10. Which of the following is not a monosaccharide with 5 carbon atoms?
a) Arabinose
b) Xylulose
c) Trehalose
d) Ribulose

**11.At its core what does HACCP stipulate?**

A.    That companies should use the right ingredients in the preparation of food.
B.    That all organisations involved in the food business should implement and maintain hygiene procedures based on HACCP principles.
C.    That people should wash their hands before handling food.
D.    That food processing organisations should keep their administrative records in good order.

12. **What does HACCP stand for?**

A.    Hazard Analysis and Critical Control Point
B.    Hazard And Critical Control Point
C.    Health Analysis and Critical Control Point
D.    Hazard And Critical Cooking Point

 13.**What does Critical Control Point mean?**

A.    The point when food handlers must start to make administrative records in the HACCP system.
B.    The point when steam starts to rise from food being cooked.
C.    When bacteria starts to grow uncontrollably on food.
D.    It is a point, step or procedure at which control can be applied to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

14. **What is a HACCP Plan?**

A.    A form that has to be filled in by all food handlers.
B.    A food hygiene rating scheme.
C.    A written document which is based upon the seven principles of HACCP, which clearly states the safety procedures to be followed to identify any hazards that must be avoided, removed or reduced.
D.    A system used in food hygiene auditing.

15. **What is a HACCP Team?**

A.    A team of highly trained chefs.
B.    A group of people who have the skills and knowledge needed to develop, implement and maintain a HACCP system.
C.    A team of government investigators.
D.    An office based team of administrative officials who specialise in food hygiene matters.

16. A substance intentionally added that preserves flavour and improves taste is called \_\_\_\_\_
a) Food additive
b) Food adulterant
c) Food contaminant
d) Food material

17. Which of the following is NOT a function of a food additive \_\_\_\_\_
a) To maintain product consistency
b) Maintain nutritive value
c) Controlling acidity/alkalinity
d) None of the mentioned

18. Statement 1: Stabilizers, Emulsifiers are certain examples of food additives.
Statement 2: Antioxidant is a class of food additive.
a) True, False
b) True, True
c) False, False
d) False, True

19. Statement 1: Food additives are divided into direct and indirect types.
Statement 2: Direct food additives become a part of the food during packaging. These are in trace amounts.
a) True, False
b) True, True
c) False, False
d) False, True

20. What are Sequestrants?
a) They are added to keep the food stable
b) Form a complex ion with metals like copper, iron etc
c) Added for color
d) They keep the food oxidized

21. \_\_\_\_\_ help in maintaining/controlling the acidic/alkaline changes during food processing and hence maintain flavor and stability.
a) Buffering agents
b) Sequestrants
c) Anti-caking agents
d) Anti-foaming agents

22. Statement 1: In control of yeast in industries, baking soda is added (which is sodium bicarbonate) react with an acid which is externally added to release carbon-di-oxide which escapes.
Statement 2: Baking soda is a leavening agent. It is an additive.
a) True, False
b) True, True
c) False, False
d) False, True

23. Statement 1: Preservatives are food additives.
Statement 2: Sweeteners consist of calorie, low-calorie and non-calorie sweeteners.
a) True, False
b) True, True
c) False, False
d) False, True

24. Which sentence is untrue?
a) GRAS stands for ‘generally recognized as safe’
b) Boric acid has been banned
c) High levels of MSG leads to ‘Chinese Restaurant Syndrome’
d) Food additives need not be numbered or labelled

25. Statement 1: All food additives are carcinogenic.
Statement 2: Food additives must be avoided as far as possible.
a) True, False
b) True, True
c) False, False
d) False, True

26. Which among the following are not used as raw materials for alcohol production?
a) corn
b) molasses
c) whey
d) grapes

27. The organism used for alcohol fermentation should have a high tolerance for alcohol.
a) True
b) False

28. What is the pH required for the production of baker’s yeast?
a) 1 to 2
b) 4 to 5
c) 7 to 8
d) 10 to 12

29. The leavening or rising of dough is due to which of the following gases?
a) oxygen
b) carbon dioxide
c) hydrogen
d) sulphur dioxide

30. Which of the following instrument is used for the recovery of yeast cells?
a) fermenter
b) centrifuge
c) filter press
d) mash storage

31. Which of the following product is used as a food condiment?
a) Baker’s yeast
b) Ethanol
c) Wine
d) Soy sauce

32. Which of the following yeast can be used to produce microbial protein?
a) Saccharomyces cerevisiae
b) Candida milleri
c) Eremothecium ashbyi
d) Candida utilis

33. The medium for production of Baker’s yeast contains only molasses and inoculum.
a) True
b) False

**34. Yeast is used for the production of**

(a) Tetracycline

(b) Butanol

(c) Ethanol

(d) Citric Acid

**35. Which alga can be used as food for the human being?**

(a)Chlorella

(b)Polysiphonia

(c)Ulothrix

(d)Spirogyra

**36. Which of the following microorganisms is not used as a biofertilizer?**

(a) Rhizobium

(b) Nostoc

(c) Mycorrhiza

(d) Agrobacterium

37. Nanomaterials are the materials with at least one dimension measuring less than \_\_\_\_\_\_\_\_\_\_\_
a) 1 nm
b) 10 nm
c) 100 nm
d) 1000 nm

38. A material with one dimension in Nano range and the other two dimensions are large is called \_\_\_\_\_\_\_\_\_\_\_
a) Micro-material
b) Quantum wire
c) Quantum well
d) Quantum dot

39. The colour of the nano gold particles is \_\_\_\_\_\_\_\_\_\_\_
a) Yellow
b) Orange
c) Red
d) Variable

40. The melting point of particles in nano form \_\_\_\_\_\_\_\_\_\_\_
a) Increases
b) Decreases
c) Remains same
d) Increases then decreases

41. The first talk about nano-technology was given by \_\_\_\_\_\_\_\_\_\_\_
a) Albert Einstein
b) Newton
c) Gordon E. Moore
d) Richard Feynman

42. Which of the processes of materials was not described as Nanotechnology?
a) Separation
b) Creation
c) Processing
d) Consolidation

43. The initial tools used to help launch the nanoscience revolution were \_\_\_\_\_\_\_\_\_\_\_
a) Binoculars
b) Microscope
c) Scanning probe instruments
d) Interferometer

44. When semiconductors are reduced to nanometres they become pure conductors.
a) True
b) False

45. The major difference between the nano materials compared to the bulk form is the big fraction of the total number of atoms on the surface.
a) True
b) False

46. The size of atoms is nearly \_\_\_\_\_\_\_\_\_\_\_\_
a) 0.01 nm
b) 0.1 nm
c) 1 nm
d) 10 nm

47. The four types of Artificial nanomaterials are \_\_\_\_\_\_\_\_\_\_
a) Carbon-based, non-metallic, composites and ceramics
b) Carbon-based, metallic, composites and ceramics
c) Carbon-based, non-metallic, composites and dendrimers
d) Carbon-based, metallic, composites and dendrimers

48. Nano sized polymers built from branched units are called \_\_\_\_\_\_\_\_\_\_
a) Dendrimers
b) Composites
c) Carbon-based materials
d) Metal-based materials

49. Which property of nanoparticles provides a driving force for diffusion?
a) Optical Properties
b) High surface area to volume ratio
c) Sintering
d) There is no such property

50. The colour of the nano gold particles is \_\_\_\_\_\_\_\_\_\_
a) Yellow
b) Orange
c) Red
d) Variable

51. On both ends of the CNTs, which carbon nanostructure is placed?
a) Graphite
b) Diamond
c) C60
d) Benzene

52. When semiconductors are reduced to nanometres they become pure conductors.
a) True
b) False

53. Quantum dots can be used in \_\_\_\_\_\_\_\_\_
a) Crystallography
b) Optoelectronics
c) Mechanics
d) Quantum physics

54. Carbon nano tubes are the sheets of graphite about \_\_\_\_\_\_\_\_
a) 0.1nm
b) 0.2nm
c) 0.3nm
d) 0.4nm

55. Carbon nano tubes are also called as \_\_\_\_\_\_\_\_
a) Bucky tubes
b) Bulky tubes
c) Bulk tubes
d) Buck balls

56. Carbon nano tubes are first observed in \_\_\_\_\_\_\_\_\_
a) 1992
b) 1991
c) 1990
d) 1993

57. In how many methods the CNT can be prepared?
a) 1
b) 2
c) 3
d) 4

58. Nanobiotechnology deals with materials of the size \_\_\_\_\_\_\_ m.

 A. 1 / 100000000

B. 1 / 10000000

 C. 1 / 1000000000

D. 1 / 10000000000

59. Bucky balls are made up of \_\_\_\_\_\_.

A. nickel.

 B. DNA.

C. RNA.

 D. carbon.

60. Which one of the following technology is used in making memory chips?

 A. Nano design.

B. Nano fabrication.

C. Microassay.

 D. Tissue engineering.

 61. The art and science of etching, writing or printing at the microscopic level in the order of nanometer is \_\_\_\_\_\_\_\_

 A. NEMS.

B. nano lithography.

 C. nano fabrication.

 D. nanopaltcinins.

62. The process used to create topographical features on a surface by selective removal of material by physical or chemical means is called \_\_\_\_\_\_\_

A. etching.

B. bonding.

 C. lithography.

D. writing.

63. Quantum dots are \_\_\_\_\_\_\_\_ in nature.

 A. inorganic.

B. organic.

C. biologic.

D. metalic.

64. Silicon or polymer devices that perform non-electronic functions such as sensing and activation are called as \_\_\_\_\_\_\_\_\_.

 A. microsystems.

 B. nanosystems.

 C. sensors.

 D. smart systems.

65. Microsystems with advanced capabilities and own intelligence are commonly referred to as \_\_\_\_\_\_\_\_.

 A. bio MEMS.

 B. MEMS.

 C. sensors.

D. smart systems.

66. Expand MRI.

 A. Magnetic Resonance Imaging.

 B. Molecule Resonance Imaging.

C. both a and b.

 D. b alone.

67. MEMs can be employed in which of the following?

A. Peizoresistive pressure sensors.

 B. Micromotors.

 C. Drug delivery microsystems.

D. All of the above.

68. Nanoparticles that are used as pharmaceutical delivery systems are called as \_\_\_\_\_\_\_.

 A. nanocapsules.

 B. nanocarriers.

C. nanotubes.

 D. nanoarray.

69. Which of the following can be used as nanocarriers?

 A. Liposomes, quantum dots.

 B. Micelles, dendrimers.

C. Microcapsules.

 D. All the above.

70. Fullerenes are \_\_\_\_\_\_\_.

A. bionanomaterials.

 B. carbon based carriers.

 C. polymers.

D. dendrimers.

71. Nano particles in biomedical application are \_\_\_\_\_\_\_\_\_.

 A. nano capsules.

B. nano spheres.

C. both a and b.

 D. neither a nor b.

72. Matrix type structures are observed in \_\_\_\_\_\_\_\_\_\_.

A. nano spheres.

 B. nano particles.

C. nano pores.

D. nano tubes.

73.Intellectual Property Rights (IPR) protect the use of information and ideas that are of

 a. Ethical value

 b. Moral value

 c. Social value

 d. Commercial value

 74.The term ‘Intellectual Property Rights’ covers

 a. Copyrights

b. Know-how

 c. Trade dress

d. All of the above

 75.The following can not be exploited by assigning or by licensing the rights to others.

 a. Patents

 b. Designs

 c. Trademark

 d. All of the above

 76.The following can be patented

a. Machine

b. Process

 c. Composition of matter

 d. All of the above

77.Trade mark

a. is represented graphically

b. is capable of distinguishing the goods or services of one person from those of others

c. may include shapes of goods or combination of colours

 d. All of the above

78. Plant variety means

 (a) Lowest rank in taxon

 (b) Highest rank in taxon

 (c) Intermediate rank

 (d) Not related to taxon

 79. Plant variety protection is required

(a) To get higher yield

(b) To get more paste resistant plant

(c) To promote research and development

 (d) All the above

 80. The plant variety protected in India include

 (a) Extant variety

 (b) Essentially derived variety

 (c) Farmer’s variety

 (d) All the above

 81. Farmer can be considered as breeder

 (a) Yes

 (b) No

 (c) Yes in some cases

 82. To register a plant variety, the criteria require include

(a) New

(b) Distinct

 (c) Uniform

(d) All the above

 83. UPOV is

 (a) Convention for plant variety

(b) United states patent

(c) Convention for patent

(d) None of the above

84. Biodiversity means

 (a) Variety of life

 (b) Variety and variability of life

 (c) Variability within species

 (d) Both (b) and (c)

85. Patenting genetic resources may leads to

 (a) Conservation of bio-diversity

(b) Protection of bio-diversity

(c) Destruction of bio-diversity

 (d) All the above

86. Monoclonal antibodies are

 a) heterogenous antibodies produced from single clone of plasma cells

b) homogenous antibodies produced from single clone of plasma cells

 c) both a and b

 d) none of these

87. Natural humoral immune response against a pathogen leads to the production of

a) polyclonal antibodies

b) monoclonal antibodies

 c) macrophages

d) none of these

88.The technology used for the production of monoclonal antibodies is

 a) massculture technology

 b) hybridoma technology

 c) suspension culture

 d) none of these

 89. Hybridoma technology was developed by

 a) Kohler and Milstein

 b) Khorana and Nirenberg

c) Khorana and Korenberg

 d) Beedle and Tautum

90. The hybridomas are made by

 a) fusing T cells with myeloma cells

b) fusing B cells with myeloma cells

 c) fusing T helper cells with myeloma cells

d) fusing B memory cells with myeloma cells

91. Patent application can be filed in India by

 (a) True and First Inventor

 (b) Assignee of the inventor

 (c) Legal representative of the inventor

 (d) All the above

92. Patent application contains

 (a) Form-1

(b) Form-2

(c) Both (a) and (b)

 (d) None

 93. Complete Specification contains

(a) Title of invention

 (b) Description of invention

 (c) Claim

 (d) All the above

9 4. If you file provisional specification, the complete specification is required to be filed within

(a) 10 months

 (b) 12 months

 (c) 18th months

 (d) 24 months

95. Indian Patent system has

 (a) Pre-grant opposition

(b) Post-grant opposition

 (c) Both (a) and (b)

 (d) None of the above

 96. Pre-grant opposition can be filed by

 (a) Any person

 (b) Person interested

 (c) Both (a) and (b)

(d) None

97. Patent can be revoked in India

 (a) Yes

 (b) No

(c) Yes in some cases

 98. Working of Patent is required in India

 (a) Yes

(b) No

 (c) Yes in some cases

 99. Patent of addition can be filed by

 (a) Inventor

 (b) Patentee

 (c) Both (a) and (b)

 (d) None of the above

100. Patent can be infringed by

(a) Directly

 (b) In-directly

 (c) Both (a) and (b)

 (d) None

**Answer key:-**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 – d | 21 – a | 41 – d | 61 – b | 81 – c |
| 2 – c | 22 – b | 42 –b | 62 – a | 82 – d |
| 3 – a | 23 – b | 43 – c | 63 – a | 83 – a |
| 4 – b | 24 – d | 44 – b | 64 – a | 84 – d |
| 5 – b | 25 – d | 45 – a | 65 – d | 85 – c |
| 6 – a | 26 – c | 46 – a | 66 – a | 86 – b |
| 7 – a | 27 – a | 47 – d | 67 – d | 87 – a |
| 8 – c | 28 – b | 48 – a | 68 – b | 88 – b |
| 9 – a | 29 – b | 49 – b | 69 – d | 89 – a |
| 10 – c | 30 – c | 50 – d | 70 – b | 90 – b |
| 11 – b | 31 – d | 51 – c | 71 – c | 91 – d |
| 12 – a | 32 – d | 52 – b | 72 – a | 92 – c |
| 13 – d | 33 – b | 53 – b | 73 – d | 93 – d |
| 14 –c | 34 – c | 54 – d | 74 – d | 94 – b |
| 15 – b | 35 – a | 55 – a | 75 – c | 95 – c |
| 16 – a | 36 – d | 56 – b | 76 – d | 96 – a |
| 17 – d | 37 – c | 57 – d | 77 – d | 97 – c |
| 18 – b | 38 – c | 58 – c | 78 – a | 98 – a |
| 19 – a | 39 – d | 59 – d | 79 – d | 99 – c |
| 20 – b | 40 – b | 60 – b | 80 – d | 100 – c |