Answer Key :Biotechnology

Type: Biotechnology

1) In an alpha-helix of protein, hydrogen bonds are formed-

Options:

- 1.within a single chain
- 2.between the chain run side by side
- 3.between polar amino acids and water
- 4.Only between amino acids of opposite charge

Correct Option: 1

Type: Biotechnology

2) Glycogen is a branched polymer of glucose. It has-

Options:

- 1.No reducing ends
- 2.no non-reducing end
- 3.One reducing end and several non-reducing ends.
- 4.One non-reducing end and several reducing ends.

Correct Option: 3

Type: Biotechnology

3) Which of the following is incorrect about NAD+ ?

Options:

- 1.It is a flavin nucleotide.
- 2.It is the major electron acceptor
- 3.It contains a nicotinamide ring that accepts a hydride ion during reduction
- 4.It is a derivative of adenosine

Correct Option: 1

Type: Biotechnology

4) In a chemical reaction, transition state species have free enrgies-

Options:

- 1.lower that either reactants or products.
- 2.higher than either reactants or products.
- 3.lower than reactants but higher than the products
- 4.higher than reactants but lower than the products

Correct Option: 2

Type: Biotechnology

5) Heterotropic enzymes are -

Options:

- 1.different isozymes
- 2.modified by their substrate concentration
- 3.stimulated or inhibited by an effector or modulator other than substrates.
- 4.have same Vmax but different Km

Correct Option: 3

Type: Biotechnology

6) Plastocyanin is a mobile electron carrierbetween -

Options:

- 1.PS-II and cytochrome bf complex
- 2.PS-I and cytochrome bf complex
- 3.oxygen evolving complex and PS-II
- 4.PS-I and Ferridoxin

Correct Option: 2

Type: Biotechnology

7) When sunlight is on the chloroplast, pH is lowest in the

Options:

- 1.stroma
- 2.cytosol
- 3.space enclosed by inner and outer membranes
- 4.space enclosed by the thallakoid membrane

Correct Option: 4

Type: Biotechnology

8) Atom of pyrimiding ring of nucleotide is derived from

Options:

- 1.glutamine
- 2.carbomoyl phosphate and aspartate
- 3.glutamine and formoyl tetrahydrofolate
- 4.aspartate and formoyl tetrahydrofolate

Correct Option: 2

Type: Biotechnology

9) What is the strongest reducing agent in photosynthetic electron-transfer reactions?

Options:

- 1.plastoquinone
- 2.P680*
- 3.P700*
- 4.P700

Correct Option: 3

Type: Biotechnology

10) Cyaobacteria is differ from purple and green photosynthetic bacteria because they

Options:

- 1.have a membrane-enclosed nucleus
- 2.use H2S as an electron donor
- 3.do not require light
- 4.produce oxygen during photosynthesis

Correct Option: 4

Type: Biotechnology

11) Assertion (A): Obtaining informed consent from research participants is essential. Reason (R): It ensures participants are aware of the study's aims, risks, and benefits before agreeing to take part.

Options:

- 1.Both A and R are true, and R is the correct explanation of A
- 2.Both A and R are true, but R is not the correct explanation of A
- 3.A is true, but R is false
- 4.A is false, but R is true

Correct Option: 1

Type: Biotechnology

12) Two proteins have same molecular mass and identical molecular charge at pH 7.0. The best way to separate them would be -

Options:

- 1.SDS-PAGE
- 2.Native gel electrophoresis
- 3.cation exchange
- 4.anion exchange

Correct Option: 2

Type: Biotechnology

13) Match the coefficient in group 1 with their corresponding downstream processing steps given in group 2- Group 1 P. Sedimentation Coefficient Q. Partition Coefficient R. Rejection Coefficient S. Activity Coefficient Group 2 1. Aquous two-phase extraction 2. Ultrafiltration 3. Dialysis 4. Centrifugation

Options:

- 1.P-3, Q-1, R-4, S-2
- 2.P-2, Q-1, R-4, S-3
- 3.P-4, Q-3, R-1, S-2
- 4.P-4, Q-1, R-2, S-3

Correct Option: 4

Type: Biotechnology

14) Fluorescent microscopy is based on the ability of certain molecules to -

Options:

- 1.absorb light of a constant weblength
- 2.absorb light of many wavelength
- 3.absorb light of a given weblength and emits light of a longer wavelength
- 4.absorb light of a given weblength and emits light of a shorter wavelength

Correct Option: 3

Type: Biotechnology

15) 3D image of a of the surface of the cells and tissue could be visualized through

Options:

- 1.Transmission electron microscopy
- 2.scanning electron microscopy
- 3.compound microscopy
- 4.fluorescence microscopy

Correct Option: 2

Type: Biotechnology

16) SDS is used to separate proteins by PAGE because-

Options:

- 1.Decrrase the protei's surface tension
- 2.it solubilize the proteins to be separated
- 3.It bids to amino acids and provide uniform negative charge
- 4.Stabilizes the protins

Correct Option: 3

Type: Biotechnology

17) In immunoblot, target proteins are visualized using-

Options:

- 1.fluorescent dye
- 2.radioactive probe
- 3.ethedium bromide
- 4.enzyme-linked antibodies

Correct Option: 4

Type: Biotechnology

18) In the exponential phase of growth of a bacterial culture, 100CFU/ml cells increased to 3200 CFU/ml cells in 2 hours. What is the generation time for this bacterium?

Options:

- 1.12 min
- 2.15 min
- 3.24 min
- 4.30 min

Correct Option: 3

Type: Biotechnology

19) All of the following components of a reterovirus are encoded by the viral genome, except

Options:

- 1.reverse transcriptase
- 2.viral RNAs
- 3.Capsid Protein
- 4.Enveloped lipids

Correct Option: 4

Type: Biotechnology

20) Which of the following enzyme has both DNA polymerase and RNaseH activity?

Options:

- 1.pancreatic ribonuclease A
- 2.Reverse transcriptase
- 3.DNAzyme
- 4.RNaseP

Correct Option: 2

Type: Biotechnology

21) A MHC class-I molecule was run on an SDS-PAGE gel. How many protein bands will be observed in the gel?

Options:

- 1.4
- 2.3
- 3.2
- 4.1

Correct Option: 3

Type: Biotechnology

22) Somatic mutations of immunoglobulin genes accounts for

Options:

- 1.allelic exclusions
- 2.affinity maturation
- 3.clas switching from IgM to IgG
- 4.increased expression of IgG gene

Correct Option: 2

Type: Biotechnology

23) CoT Analysis provide an estiate of the

Options:

- 1.G+C contents of DNA
- 2.Tm of the DNA
- 3.Complexity of genome
- 4.hyperchomic shift of the genome

Correct Option: 3

Type: Biotechnology

24) Which of the following will not cause triploidy?

Options:

- 1.fusion of an egg and polar bodies with subsequent fertilization by sperm cell
- 2.Meiotic failure, producing diploid sperm or egg
- 3.dispermy
- 4.mitotic failure in the early embryo

Correct Option: 4

Type: Biotechnology

25) Which is produced during water stress that brings about stomatal closure?

Options:

- 1.abscisic acid
- 2.ethyline
- 3.ferulic acid
- 4.coumarin

Correct Option: 1

Type: Biotechnology

26) Which of the following statement is true?

Options:

- 1.all microarrays are DNA microarrays
- 2.complete genome sequence should be known to make a microarray
- 3.all the microarray use radioisotopes
- 4.microarrays can be used to measure mRNA levels

Correct Option: 4

Type: Biotechnology

27) A bacterial metabolite was found maximum at growth phase. The maximum yield of metabolite will be obtained at-

Options:

- 1.lag phase
- 2.log phase
- 3.stationary phase
- 4.decline phase

Correct Option: 2

Type: Biotechnology

28) A human cell line is treated with a drug and observed that 75% cells are present in a G1 phase. While S, G2 and

M phase has 2%, 5% and 18% cells, respectively. Therefore, drug is a-

Options:

- 1.G1 inhibitor
- 2.G2 inhibitor
- 3.S1 inhibitor
- 4.M inhibitor

Correct Option: 1

Type: Biotechnology

29) Most of the global warming is due to the perturbation of which of these cycles?

Options:

- 1.Global nitrogen cycle
- 2.Global carbon cycle
- 3.Global water cycle
- 4.All cycles equally contribute

Correct Option: 2

Type: Biotechnology

30) Which condition often promotes inclusion body formation during protein expression?

Options:

- 1.Low expression level
- 2.Slow protein synthesis
- 3.overexpression of recombinant protein
- 4.Absence of plasmid

Correct Option: 3