



BIOLOGY

BOOKS - SARAS PUBLICATION

CELL STRUCTURE AND FUNCTION

Example

1. Which one of the following is not a constituent of cell membrane?

A. Phospholipids

B. Cholesterol

C. Glycolipids

D. Proline

Answer:



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2. Select the wrong statement from the following:

A. The chloroplasts are generally much larger than mitochondria

B. Both chloroplasts and mitochondria contain an inner and an outer membrane

C. Both chloroplasts and mitochondria have an internal compartment, the thylakoid space bounded by the thylakoid membrane

D. Both chloroplasts and mitochondria contain DNA

Answer:



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3. If you are asked to classify the various algae into distinct groups, which of the following characters you should choose?

A. Chemical composition of the cell wall

B. Types of pigments present in the cell

C. Nature of stored food materials in the
cell

D. Structural organization of thallus

Answer:



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4. Which one of the following pairs, is not correctly matched?

A. IAA - Cell wall elongation

B. Abscisic Acid - Stomatal closure

C. Gibberellic Acid - Leaf fall

D. Cytokinin - Cell division

Answer:



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5. Which one of the following is a fat - soluble vitamin and its related deficiency disease?

A. Calciferol - Pellagra

B. Ascorbic acid - Scurvy

C. Retinol - Xerophthalmia

D. Cobalamine - Beri-beri

Answer:



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6. In which one of the following preparations are you likely to come across cell junctions most frequently?

- A. Hyaline cartilage
- B. Ciliated epithelium
- C. Thrombocytes
- D. Tendon

Answer:



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7. Which one of the following pairs of structures distinguishes a nerve cell from other types of cell?

A. Nucleus and mitochondria

B. Perikaryon and dendrites

C. Vacuoles and fibres

D. Flagellum and medullary sheath

Answer:



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8. Which one of the following statements is correct

A. At present it is not possible to grow maize without chemical fertilizers

B. Extensive use of chemical fertilizers may lead to eutrophication of nearby water bodies.

C. Both *Azotobacter* and *Rhizobium* fix atmospheric nitrogen in root nodules of plants

D. Cyanobacteria such as *Anabaena* and *Nostoc* are important mobilizers of

phosphates and potassium for plant nutrition in soil

Answer:



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9. Which one of the following pairs is wrongly matched?

A. Coliforms - Vinegar

B. Methanogens - Gobar gas

C. Yeast - Ethanol

D. Streptomyces - Antibiotic

Answer:



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10. Lysozyme that is present in perspiration, saliva and tears, destroys:

A. most virus - infected cells

B. certain fungi

C. certain types of bacteria

D. all viruses

Answer:



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11. In humans, at the end of the first meiotic division the male germ cells, differentiate into the:

A. primary spermatocytes

B. secondary spermatocytes

C. spermatids

D. spermatogonia

Answer:



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12. Cellulose is the major component of cell walls of :

A. Pythium

B. Xanthomonas

C. Pseudomonas

D. Saccharomyces

Answer:



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13. The two subunits of ribosomes remain united at critical ion level of ____

A. Copper

B. Manganese

C. Magnesium

D. Calcium

Answer:



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14. In the light of recent classification of living organisms into three domains of life (bacteria, archaea and eukarya), which one of the following statements is true about archaea?

- A. Archaea resemble eukarya in all respects
- B. Archaea have some novel features that are absent in other prokaryotes and eukaryotes
- C. Archaea completely differ from both prokaryotes and eukaryotes
- D. Archaea completely differ from prokaryotes

Answer:



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15. Thermococcus, Methanococcus and Methanobacterium exemplify:

A. Archaeobacteria that contain protein homologous to eukaryotic core histones.

B. Archaeobacteria that lack any histones resembling those found in eukaryotes but whose DNA is negatively supercoiled

C. Bacteria whose DNA is relaxed or positively supercoiled but which have a

cytoskeleton as well as mitochondria

D. Bacteria that contain a cytoskeleton and
ribosomes

Answer:



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16. There is no DNA in

A. Mature RBCs

B. A mature spermatozoan

C. Hair root

D. An enucleated

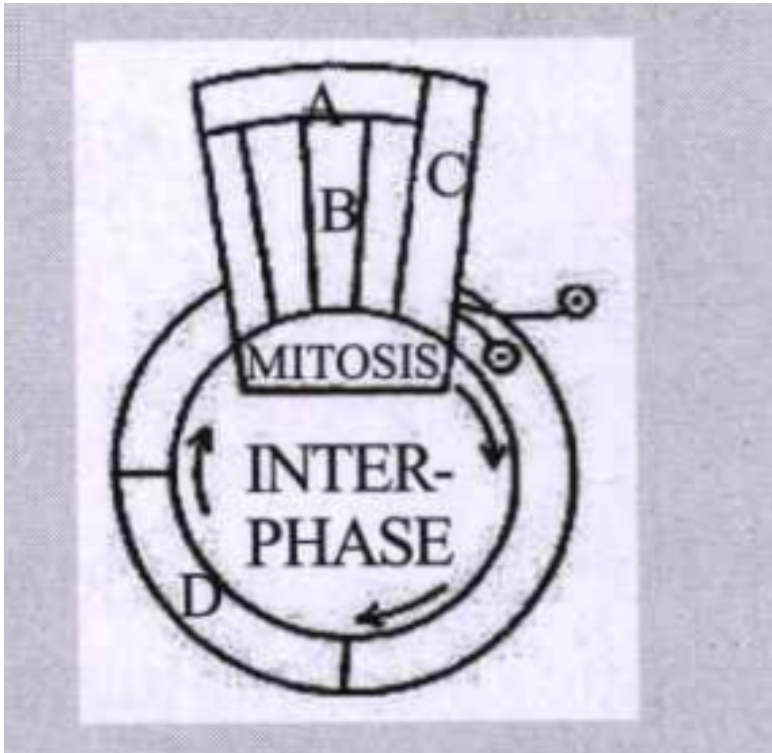
Answer:



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17. Given is a schematic break - up of the *phases / sta* $\geq s$ of cell cycle: Which one of the following is the correct indication of the

sta \geq / *phase*, in the cell cycle?



A. C- Karyokinesis

B. D-Synthetic phase

C. A-Cytokinesis

D. B-Metaphase

Answer:



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18. Synapsis occurs Between:

- A. mRNA and ribosomes
- B. spindle fibres and centiomere
- C. two homologous chromosomes
- D. a male and a female gamete

Answer:



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19. Plasmodesmata are :

- A. Locomotory structures
- B. Membranes connecting the nucleus with
plasmalemma
- C. Connections between adjacent cells
- D. Lignified cemented layers between cells

Answer:



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20. Cytoskeleton is made up of :

- A. Callose deposits
- B. Cellulosic microfibrils
- C. Proteinaceous filaments
- D. Calcium carbonate granules

Answer:



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21. The middle lamella is made up of ____

- A. Muramic acid
- B. Calcium pectate
- C. Phosphoglycerides
- D. Hemicellulose

Answer:



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22. Which one of the following is the correct matching of Three items and their grouping category?

A. ilium, ischium, pubis - Coxal bones of pelvic girdle

B. actin, myosin, rhodopsin - muscle proteins

C. cytosine, uracil, thiamine- pyrimidines

D. malleus, incus, cochlea - ear ossicles

Answer:



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23. Single - celled eukaryotes are include in :

A. Protista

B. Fungi

C. Archaea

D. Monera

Answer:



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24. Membrane -bound organelles are absent in

:

A. Saccharomyces

B. Streptococcus

C. Chlamydomonas

D. Plasmodium

Answer:



25. Select the correct statement from the following?

A. Biogas is produced by the activity of aerobic bacteria on animal waste.

B. Methanobacterium is an aerobic bacterium found in rumen of cattle

C. Biogas, commonly called gobar gas, is pure methane

D. Activated sludge - sediment in settlement tanks of sewage treatment plant is a rich source of aerobic bacteria

Answer:



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26. The kind of epithelium which forms the inner walls of blood vessels is:

A. cuboidal epithelium

B. columnar epithelium

C. ciliated columnar epithelium

D. squamous epithelium

Answer:



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27. Which one of the following has its own DNA?

A. Mitochondria

B. Dictyosome

C. Lysosome

D. Peroxisome

Answer:



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28. Virus envelope is known as :

A. Capsid

B. Virion

C. Nucleoprotein

D. Core

Answer:



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29. During mitosis ER and nucleolous being to disappear at

A. Late prophase

B. Early metaphase

C. Late metaphase

D. Early prophase

Answer:



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30. Main arena of various types of activities of a cell is

A. Plasma membrane

B. Mitochondrion

C. Cytoplasm

D. Nucleus

Answer:



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31. Peptide synthesis inside a cell takes place in

A. Ribosomes

B. Chloroplast

C. Mitochondria

D. Chromoplast

Answer:



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32. In eubacteria, a cellular component that resembles eukaryotic cell is

A. Cell wall

B. Plasma membrane

C. Nucleus

D. Ribosomes

Answer:



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33. Which one of the following also acts as a catalyst in a bacterial cells?

A. 23 sr RNA

B. 5 sr RNA

C. sn RNA

D. hn RNA

Answer:



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34. Nitrifying bacteria

A. Reduce nitrates to free nitrogen

B. Oxidize ammonia to nitrates

C. Convert free nitrogen to nitrogen
compounds

D. Convert proteins into ammonia

Answer:



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35. A prokaryotic autotrophic nitrogen fixing symbiont is found in

A. Pisum

B. Alnus

C. Cycas

D. Cicer

Answer:



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36. Which one of the following organisms is not an example of eukaryotic cells.

A. *Amoeba proteus*

B. *Paramecium caudatum*

C. *Escherichia coli*

D. *Euglena viridis*

Answer:



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37. Select the correct option with respect to mitosis

A. Chromosomes move to the spindle equator and get aligned along equatorial plate in metaphase

B. Chromatids separate but remain in the centre of the cell in anaphase

C. Chromatids start moving towards opposite poles in telophase

D. Golgi complex and endoplasmic reticulum are still visible at the end of prophase

Answer:



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38. What are those structures that appear as 'beads-on-string' in the chromosomes when viewed under electron microscope?

- A. Base pairs
- B. Genes
- C. Nucleotides
- D. Nucleosomes

Answer:



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39. The most abundant prokaryotes helpful to human in making curd from milk and in production of antibiotics are the ones categorised as

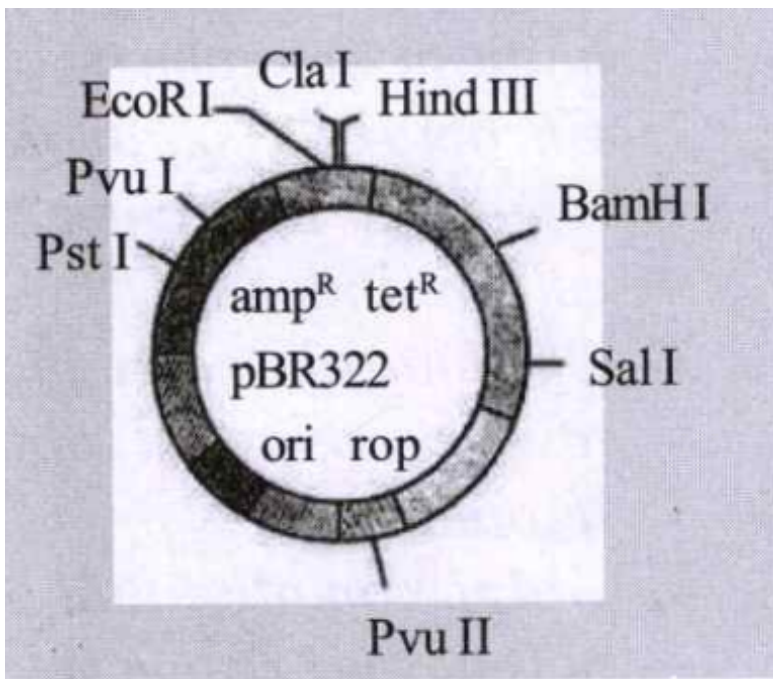
- A. Cyanobacteria
- B. Archaeobacteria
- C. Chemosynthetic autotrophs
- D. Heterotrophic bacteria

Answer:



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40. The figure below is the diagrammatic representation of the E. Coli vector pBR322. Which one of the given options correctly identifies its certain component (s)?



A. ori - original restriction enzyme

B. rop - reduced osmotic pressure

C. Hind III, EcoRI - selectable markers

D. ampR, tetR - antibiotic resistance genes

Answer:



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41. The correct sequence of cell organelles during photorespiration is

A. Chloroplast,- Golgibodies,-mitochondria

B. Chloroplast,-Rough Endoplasmic

reticulum Dictyosomes

C. Chloroplast, -mitochondria,- peroxisome

D. Chloroplast, - vacuole, -peroxisome

Answer:



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42. Which one of the following does not differ in E.coli and Chlamydomonas

A. Ribosomes

B. Chromosomal Organization

C. Cell wall

D. Cell membrane

Answer:



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43. The Cyanobacteria are also referred to as

A. protists

B. golden algae

C. Slime moulds

D. blue green algae

Answer:



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44. What is true about ribosomes?

- A. The prokaryotic ribosomes are 80S, where “S” stands for sedimentation coefficient
- B. These are composed of ribonucleic acid and proteins
- C. These are found only in eukaryotic cells
- D. These are self - splicing introns of some RNAs

Answer:



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45. Nuclear membrane is absent in

A. Penicillium

B. Agaricus

C. Volvox

D. Nostoc

Answer:



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46. Select the correct statement from the following regarding cell membrane.

A. Na^+ and K^+ ions move across cell membrane by passive transport

B. Proteins make up 60 to 70% of the cell membrane.

C. Lipids are arranged in a bilayer with polar heads towards the inner part

D. Fluid mosaic model of cell membrane was proposed by Singer and Nicolson

Answer:



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47. Major site for the synthesis of lipids

A. RER

B. SER

C. Symplast

D. Nucleoplasm

Answer:



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48. Meiosis takes place in

A. Meiocyte

B. Conidia

C. Gemmule

D. Megaspore

Answer:



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49. Golgi complex plays a major role in

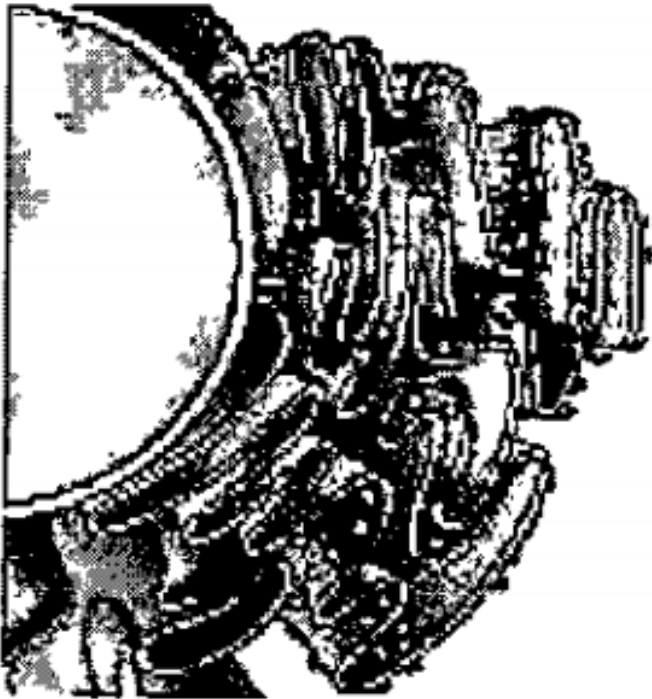
- A. In trapping the light and transforming it into chemical energy
- B. In digesting proteins and carbohydrates
- C. As energy transferring organelles
- D. In post translational modification of proteins and glycosidation of lipid

Answer:



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50. Which one of the following organelle in the figure correctly matches with its function ?



- A. Rough endoplasmic reticulum, formation of glycoproteins
- B. Golgi apparatus, protein synthesis
- C. Golgi apparatus, formation of glycolipids
- D. Rough endoplasmic reticulum, protein synthesis

Answer:



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51. The essential chemical components of many coenzymes are

- A. Proteins
- B. Nucleic acids
- C. Carbohydrates
- D. Vitamins

Answer:

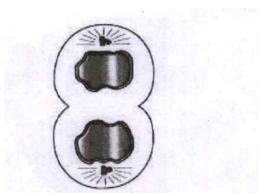


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52. A stage in cell division is shown in the figure. Select the answer which gives correct identification of the stage with its characteristics.

A. Telophase - Nuclear envelop reforms
golgi complex reforms

B. Late Anaphase - Chromosomes move
away from equatorial plate, golgi
complex not present.



C. Cytokinesis - Cell plate formed,
mitochondria distributed between two
daughter cells.

D. Telophase - Endoplasmic reticulum and
nucleolus not reformed yet

Answer:



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53. During the metaphase stage of mitosis spindle fibers attach to chromosomes at

A. Centromere

B. Kinetochore

C. Both centromere and kinetochore

D. Centromere, kinetochore and areas adjoining centromere

Answer:



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54. During meiosis I, the chromosomes start pairing at

A. Leptotene

B. Zygotene

C. Pachytene

D. Diplotene

Answer:



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55. Which of the following elements is a constituent of biotin?

A. Sulphur

B. Magnesium

C. Calcium

D. Phosphorus

Answer:



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56. Bundle sheath cells

- A. Are rich in RuBisCo
- B. Are rich in PEP carboxylase
- C. Lack RuBisCo
- D. Lack both RuBisCo and PEP carboxylase

Answer:



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57. Megaspore arises from

A. Meiotic division

B. Mitotic division

C. Formation of a thick wall

D. Differentiation

Answer:



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58. Select the alternative giving correct identification and function of the organelle 'A'

in the diagram:



A. Endoplasmic reticulum -synthesis of lipids

B. Mitochondria - produce cellular energy

in the form of ATP

C. Golgi body - provides packaging material

D. Lysosomes-secrete hydrolytic enzymes

Answer:



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59. Which of the following statements about enzymes is wrong

A. Enzymes require optimum pH and temperature for maximum activity

B. Enzymes are denatured at high temperatures

C. Enzymes are mostly proteins but some are lipids also

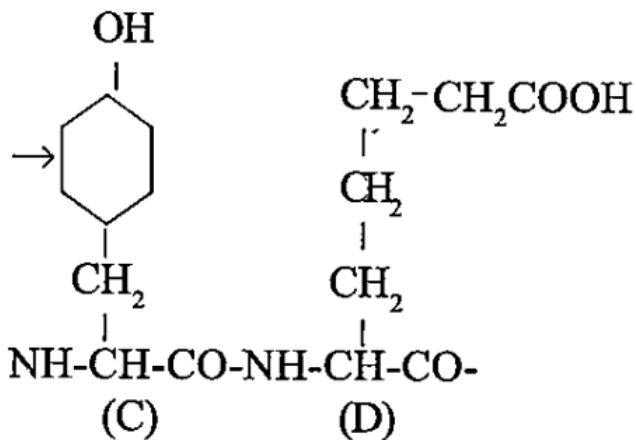
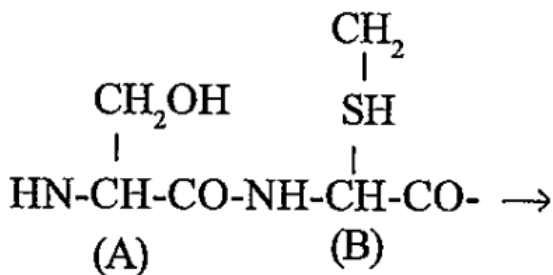
D. Enzymes are highly specific

Answer:



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60. The figure shows a hypothetical tetrapeptide portion of a protein with parts labelled A-D. Which one of the following options is correct?



A. A is the sulphur containing amino acid - methionine

B. D is the acidic amino acid- glutamic acid

C. C is an aromatic amino acid - tryptophan

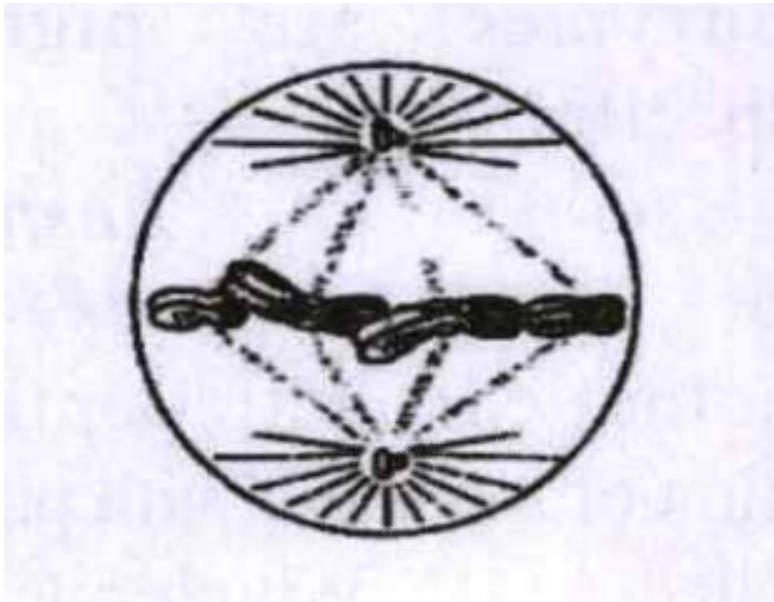
D. A is the C - terminal amino acid and D is N terminal amino acid

Answer:



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61. A stage of mitosis is shown in the diagram
Which stage is it and what are its
characteristics?



A. Late prophase - chromosomes move to
spindle equator

B. Metaphase - spindle fibres attached to kinetochores, centromeres split and chromatids separate

C. Metaphase - chromosomes moved to spindle equator chromosomes made up of two sister chromatids

D. Anaphase - centromeres split and chromatids separate and start moving away

Answer:



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62. Archaeobacteria differ from eubacteria in

- A. Cell membrane structure
- B. Mode of nutrition
- C. Cell shape
- D. Mode of reproduction

Answer:



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63. Which structures perform the function of mitochondria in bacteria?

A. Nucleoid

B. Ribosomes

C. Cell wall

D. Mesosomes

Answer:



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64. The osmotic expansion of cell kept in water is chiefly regulated by

A. Mitochondria

B. Vacuoles

C. Plastics

D. Ribosomes

Answer:



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65. Match the following and select the correct

answer:

- | | |
|----------------------|---|
| a) Centriole | (i) Infoldings
in mitochondria |
| b) Chloro -
phyll | (ii) Thylakoids |
| c) Cristae | (iii) Nucleic
acids |
| d) Ribozymes | (iv) basal body
cilia or
flagella |

A. (a)-(iv),(b)-(ii),(c)-(i),(d)(iii)

B. (a)-(i),(b)-(ii),(c)-(iv),(d)-(iii)

C. (a)-(i),(b)-(iii),(c)-(ii),(d)-(iv)

D. (a)-(iv),(b)-(iii),(c)-(i),(d)-(ii)

Answer:



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66. Which one of the following living organisms completely lacks of cells wall?

A. Cyanobacteria

B. Sea - Fan (Gorgonia)

C. Saccharomyces

D. blue green algae

Answer:



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67. The motile bacteria are able to move by

A. Fimbriae

B. Flagella

C. Cilia

D. Pili

Answer:



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68. The enzyme recombinase is required at which stage of meiosis

A. Pachytene

B. Zygotene

C. Diplotene

D. Diakinesis

Answer:



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69. The gases produced in anaerobic sludge digesters are

- A. Methane and CO_2 only
- B. Methane, Hydrogen sulphide and CO_2
- C. Methane, Hydrogen sulphide and O_2
- D. Hydrogen sulphide and CO_2

Answer:



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70. Select the correct matching in the following pairs

- A. Smooth ER - Oxidation of phospholipids
- B. Smooth ER - Synthesis of lipids
- C. Rough ER - Synthesis of glycogen
- D. Rough ER - Oxidation of fatty acids

Answer:



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71. Which one of the following is not an inclusion body found in prokaryotes?

- A. Phosphate granule
- B. Cyanophycin granule
- C. Glycogen granule
- D. Polysome

Answer:



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72. Nuclear envelope is a derivative of

- A. Smooth endoplasmic reticulum
- B. Membrane of Golgi complex
- C. Microtubules
- D. Rough endoplasmic reticulum

Answer:



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73. Cytochromes are found in

- A. Matrix of mitochondria
- B. Outer wall of mitochondria
- C. Cristae of mitochondria
- D. Lysosomes

Answer:



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74. Gene regulation governing lactose operon of E.coli that involves the lac I gene product is

A. Positive and inducible because it can be induced by lactose

B. Negative and inducible because repressor protein prevents transcription

C. Negative and repressible because repressor protein prevents transcription

D. Feedback inhibition because excess of β -

galactosidase can be switched off

transcription

Answer:



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75. Which of the following are not membrane bound?

A. Ribosomes

B. Lysosomes

C. Mesosomes

D. Vacuoles

Answer:



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76. The function of the gap junction is to

A. facilitate communication between

adjoining cells by connecting the

cytoplasm for rapid transfer of ions,
small molecules and some large
molecules

B. separate two cells each other

C. stop substance from leaking across a
tissue

D. performing cementing to keep
neighbouring cells together

Answer:



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77. Which of the following structure is not found in a prokaryotic cell?

A. Ribosome

B. Mesosome

C. Plasma membrane

D. Nuclear envelop

Answer:



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78. Arrange the following events of meiosis in correct sequences and select the correct option

Crossing over

Synapsis

Terminalisation of chiasmata

Disappearance of nucleolous.

A. (b),(a),(c),(d)

B. (a),(b),(c),(d)

C. (b),(c),(d),(a)

D. (b),(a),(d),©

Answer:



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79. Which of the following biomolecules does have phosphodiester bond?

A. Monosaccharides in a polysaccharide

B. Amino acids in a polypeptide

C. Nucleic acids in a nucleotide

D. Fatty acids in a diglyceride

Answer:



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80. The term 'linkage' was coined by

A. T. Boveri

B. G. Mendel

C. W. Sutton

D. T.H. Morgan

Answer:



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81. A protoplast is a cell:

- A. without nucleus
- B. undergoing division
- C. without cell wall
- D. without plasma membrane

Answer:



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82. Cellular organelles with membranes are :

A. Chromosomes, ribosomes and endoplasmic reticulum

B. endoplasmic reticulum, ribosomes and nuclei

C. Lysosomes, Golgi apparatus and mitochondria

D. nuclei, ribosomes and mitochondria

Answer:



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83. Cell wall is absent in :

A. Funaria

B. Mycoplasma

C. Nostoc

D. Aspergillus

Answer:



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84. In human females, meiosis-II is not complete until?

- A. fertilization
- B. uterine implantation
- C. birth
- D. puberty

Answer:



85. The enzymes that is not present in succus entericus is

- A. nucleases
- B. nucleosidase
- C. lipase
- D. maltase

Answer:



86. Water soluble pigments found in plant cell vacuoles are:

A. Anthocyanins

B. Xanthophylls

C. Chlorophylls

D. Carotenoids

Answer:



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87. Mitochondria and chloroplast are : (a) semi-autonomous Organelles (b) formed by division of preexisting organelles and they contain DNA but lack protein synthesizing machinery. Which one of the following options is correct?

- A. Both(a)and(b)are false
- B. Both(a)and(b)are correct
- C. (b) is true but (a) is false
- D. (a) is true but (b) is false

Answer:



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88. Which of the following is not a feature of the plasmids ?

- A. Single - stranded
- B. Independent replication
- C. Circular structure
- D. Transferable

Answer:



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89. Which of the following is not a characteristic feature during mitosis in somatic cells?

A. Synapsis

B. Spindle fibres

C. Disappearance of nucleolus

D. Chromosome movement

Answer:



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90. The primitive prokaryotes responsible for the production of biogas from the ruminant animals. Include the

- A. Eubacteria
- B. Halophiles
- C. Thermoacidophiles
- D. Methanogens

Answer:



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91. Microtubules are the constituents of

- A. Centrosome, Nucleosome and centrioles
- B. Cilia, Flagella and Peroxisomes
- C. Spindle fibres, Centrioles and Cilia
- D. Centrioles, Spindle fibres and Chromatin

Answer:



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92. Which one of the following cell organelles is enclosed by a single membrane?

- A. Nuclei
- B. Mitochondria
- C. chloroplasts
- D. Lysosomes

Answer:



93. Methanogens belong to

- A. Dinoflagellates
- B. Slime moulds
- C. Eubacteria
- D. Archaeobacteria

Answer:



94. A non-proteinaceous enzyme is :

A. Ligase

B. Deoxyribonuclease

C. Lysozyme

D. Ribozyme

Answer:



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95. A cell organelle containing hydrolytic enzymes is :

- A. Ribosome
- B. Mesosome
- C. Lysosome
- D. Microsome

Answer:



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96. Which cells of crypts of Leiberkuhn's secrete antibacterial lysozyme ?

- A. Paneth cells
- B. Zymogen cells
- C. Kupffer cells
- D. Argentaffin cells

Answer:



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97. Myelin sheath is produced by ,

A. Astrocytes and Schwann Cells

B. Oligodendrocytes and Osteoclasts

C. Osteoclasts and Astrocytes

D. Schwann Cells and Oligodendrocytes

Answer:



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98. Which of the following are found in extreme saline conditions?

- A. Eubacteria
- B. Cyanobacteria
- C. Mycobacteria
- D. Archaeobacteria

Answer:



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99. Which of the following options gives the correct sequence of events during mitosis?

A. *condensation*

vc ≤ armembra ≠ disassembly

arran ≥ mentatequa →

centromere ÷ ision

segregation

B. *condensation*

crossin gover

segregation

telophase

C. *condensation*

$arran \geq mentatequa \rightarrow rrarr$

centromere \div *ision*

telophase

D. *condensation*

$vc \leq armembra \neq disassembly$

crossin *govers*

telophase

Answer:



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100. Which of the following components provides sticky character to the bacterial cell?

A. Nuclear membrane

B. Plasma membrane

C. Glycocalyx

D. Cell wall

Answer:



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101. Zygote meiosis is characteristic of

..... .

A. Fucus

B. Funaria

C. Chlamydomonas

D. Marchantia

Answer:



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102. Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen?

A. Pseudomonas

B. Mycoplasma

C. Nostoe

D. Bacillus

Answer:



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103. In case of poriferance, the spongocoel is lined with flagellated cells called

A. oscula

B. choanocytes

C. mesenchymal cells

D. ostia

Answer:



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