

GPLUS EDUCATION

Date :
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BIOLOGY

CELL THE UNIT OF LIFE

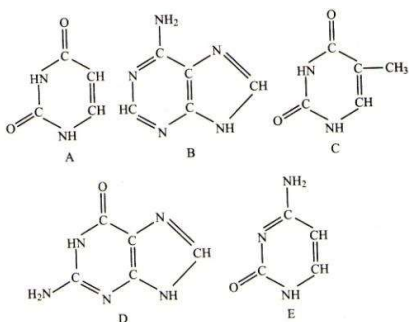
Single Correct Answer Type

- What are those structures that appear as 'beads-on-string' in the chromosomes when viewed under electron microscope?
a) Nucleotides b) Nucleosomes c) Base pairs d) Genes
- The two polynucleotide chains in DNA are
a) Parallel b) Discontinuous c) Antiparallel d) Semi-conservative
- Centrosome is not present in
a) Cell of higher plants b) Cell of lower plants
c) Cell of higher animals d) Cell of lower animals
- Channel proteins are involved in
a) Transport of enzymes b) Water transport
c) Active transport of ions d) Passive transport of ions
- Part of chromosome after secondary constriction is called
a) Centriole b) Centromere c) Chromomere d) Satellite
- Tubulin protein occurs in
a) Digestive enzymes b) Rough endoplasmic reticulum
c) Thylakoids d) Microtubules
- Quantasomes are found in
a) Mitochondria b) Chloroplast
c) Lysosome d) Endoplasmic reticulum
- In which one of the following would you expect to find glyoxysomes?
a) Endosperm of wheat b) Endosperm of castor
c) Palisade cells in leaf d) Root hairs
- The non-membranous organelles are
a) Centrioles b) Ribosomes c) Nucleolus d) All of these
- Single stranded DNA is found in
a) Polio viruses b) Rich dwarf virus c) TMV d) $\phi \times 174$
- Ribosomes that occur exclusively in mitochondria is
a) 70 S b) 55 S c) 30 S d) 50 S
- Number of protofilament in microtubule is
a) 13 b) 12 c) 5 d) 10
- ...A... are granular structures first observed under electron microscope as dense particles by ...B... (1953). Here, A and B refer to
a) A-Ribosomes; B-Perner b) A-Lysosomes; B-de Duve
c) A-Peroxisomes; B-Flemming d) A-Ribosomes; B-George Palade
- Middle lamella is present
a) Inside the secondary wall b) Inside the primary wall
c) Outside the primary wall d) In between secondary and tertiary walls
- Rough endoplasmic reticulum differs from smooth walled endoplasmic reticulum due to the presence of
a) DNA b) Nucleus c) Ribosomes d) Ergastic substance
- A widely accepted, improved model of cell membrane is
a) Fluid mosaic model b) Robertson's model

28. Plant cells possess
 a) Cell wall and central vacuole
 b) Cell wall only
 c) Cell wall and plastids
 d) Cell wall, plastids and large central vacuole
29. Which of the following statements are correct?
 I. Occurrence of different types of tissues, organs and organ system results in division of labour
 II. A new cell always develops by the division of a pre-existing cells
 III. Cells are totipotent
 IV. Cell is the smallest unit, capable of independent existence and performing the essential functions of life
 The correct option is
 a) I, II and III b) I, III and IV c) II, III and IV d) I, II, III and IV
30. Which of the following features are correct regarding ribosomes?
 I. Non-membrane bound
 II. Absent in plastids and mitochondria
 III. Present in the cytoplasm and RER
 IV. Take part in protein synthesis
 The correct option is
 a) Only II b) I and II c) I, II, III and IV d) I, III and IV
31. In prokaryotic cell,
 I. enveloped genetic material is present
 II. ribosomes are absent
 III. an organised nucleus is absent
 The correct option is
 a) Only I b) Only II c) Only III d) I, II and III
32. In a DNA molecule, distance between two bases is
 a) 2 nm/20Å b) 0.2 nm/2Å c) 3.4 nm/34Å d) 0.34 nm/3.4Å
33. Antiparallel strands of a DNA molecule means that
 a) One strand turns anti-clockwise
 b) The phosphate groups of two DNA strands at their ends, share the same position
 c) The phosphate groups at the start of two DNA strands are in opposite position(pole)
 d) One strand turns clockwise
34. Arrange the following steps in a correct sequence as per Gram's staining technique
 I. Treatment with 0.5% iodine solution
 II. Washing with water
 III. Treatment with absolute alcohol/acetone
 IV. Staining with weak alkaline solution of crystal violet
 The correct sequence is
 a) II→I→IV→III b) IV→I→II→III c) III→II→I→IV d) I→IV→III→II
35. In eukaryotes, basic structural unit made up of histone and DNA is
 a) Nucleosome b) Nucleolus c) Chromosome d) Lysosome
36. Choose the correct statement from the codes given below
 I. Separation from extracellular medium allows the cells to maintain its chemical pool, orderliness of structure and reactions in contrast to disorderly distribution and randomly interacting molecules in the extra-cellular medium
 II. Cells are unable to recognise one another due to the present of specific chemicals on their surface
 III. Cells of plant tissues are often connected with one another through cytoplasmic bridges called plasmodesmata
 IV. Different cells of an organism communicate as well as exchange materials with one another
 a) II and III b) I and II c) I, III and IV d) I, II, III and IV
37. DNA multiplication is called
 a) Translation b) Replication c) Transduction d) Transcription

38. Ribosomes are found in
 a) Cytoplasm and nucleus
 b) Golgi complex and nucleus
 c) Mitochondria and bacterial cell
 d) Endoplasmic reticulum and Golgi complex
39. In protoplasm, fat store in the form of
 a) Polypeptide
 b) Triglyceride
 c) Polysaccharide
 d) Nucleoside
40. Spindles are formed by
 a) Microtubules
 b) Endoplasmic reticulum
 c) Golgi body
 d) Peroxisomes
41. Glycocalyx (mucilage sheath) of a bacterial cell may occur in the form of a loose sheath called ...A... or it may be thick and tough called ...B...
 Choose the correct pair from the given option
 a) A-capsule; B-slime layer
 b) A-slime layer, B-capsule
 c) A-mesosome; B-capsule
 d) A-mesosome, B-slime layer
42. Function of rough endoplasmic reticulum is
 a) Fat synthesis
 b) Protein synthesis
 c) Starch synthesis
 d) Autolysis
43. Comparing small and large cells, which statement is correct?
 a) Small cells have a small surface area per volume ratio
 b) Exchange rate of nutrients is fast with large cells
 c) Small cells have a large surface area per volume ratio
 d) Exchange rate of nutrients is slow with small cells
44. Unicellular organisms are
 a) Not capable of independent existence because they cannot perform all the essential functions of life
 b) Not capable of independent existence but they can perform all the essential functions of life
 c) Capable of independent existence and can perform all the essential vital functions
 d) Capable to lead independent existence but they perform few vital functions of life
45. Stain used by Feulgen to stain DNA is
 a) Janus green
 b) Basic fuchsin
 c) Crystal violet
 d) Methylene blue
46. Out of A-T, G-C pairing, bases of DNA may exist in alternate valency state owing to arrangements called
 a) Tautomerisational mutation
 b) Analogue substitution
 c) Point mutation
 d) Frameshift mutation
47. Robert Hooke used the term cell in the year
 a) 1650
 b) 1665
 c) 1865
 d) 1960
48. Okazaki fragments are produced during the synthesis of
 a) mRNA
 b) Protein
 c) tRNA
 d) DNA
49. Cellulose, the most important constituent of plant cell wall is made up of
 a) Branched chain of glucose molecules linked by α 1-6 glycosidic bond at the site of branching
 b) Unbranched chain of glucose molecules linked by α , 1-4 glycosidic bond
 c) Branched chain of glucose molecules linked by β , 1-4 glycosidic bond in straight chain and α , 1-6 glycosidic bond at the site of branching
 d) Unbranched chain of glucose molecules linked by β , 1-4 glycosidic bond
50. In flagella membrane, which enzyme catalysis ATP activity?
 a) Cytoplasmic dyenin
 b) Asconic dynein
 c) Kinesis
 d) Myosin
51. During the replication of DNA, the synthesis of DNA on lagging strand takes place in segments. These segments are called
 a) Double helix segments
 b) Satellite segments
 c) Kornberg segments
 d) Okazaki segments
52. In DNA of certain organisms, guanine constitutes 20% of the bases. What percentage of the bases would be adenine?
 a) 0%
 b) 10%
 c) 20%
 d) 30%
53. The term 'protoplasm' was coined by

- a) Virchow b) Purkinje c) Dujardin d) Kolliker
54. Select the incorrect statement
 a) Robert Brown discovered cell
 b) Antony von Leeuwenhoek first saw and described a living cell
 c) Cell is the basic unit of structure and function of all organisms
 d) Anything less than a complete structure of a cell do not ensure independent living
55. Which of the following is responsible for the origin of lysosome?
 a) Chloroplast b) Mitochondria c) Golgi body d) Ribosome
56. In his bacteriophage experiments, Hershey and Chase demonstrated that DNA is genetic material in
 a) TMV b) *Escherichia coli*
 c) T_2 bacteriophage d) *Diplococcus pneumoniae*
57. The length of DNA molecule greatly exceeds the dimensions of the nucleus in eukaryotic cells. How is this DNA accommodated?
 a) Deletion of non-essential genes b) Super-coiling in nucleosomes
 c) DNA digestion d) Through elimination of repetitive DNA
58. Diameter of DNA is constant due to
 a) Hydrogen bonds between base pairs b) Phosphodiester bond
 c) Disulphide bond d) Covalent bonds
59. Which of the following sugars is found in nucleic acid?
 a) Dextrose b) Glucose c) Levulose d) Deoxyribose
60. Categorise the given statements as true and false
 I. Kingdom - Monera have eukaryotic organisation
 II. *E. coli* is a eukaryote
 III. Organised nucleus is present in eukaryotes
 IV. *Paramecium* is a prokaryote
 a) T, T, F, F b) F, F, T, T c) F, F, T, F d) T, T, T, F
61. Which of the following statements are correct about prokaryotic genetic material (DNA)?
 I. DNA is naked, that is without histones
 II. DNA is usually circular/single chromosome
 III. Outside the genomic DNA, small circular DNA is also present in many bacteria
 IV. The smallest DNA are called plasmids
 a) I and II b) I and III c) Only I d) I, II, III and IV
62. Golgi body originates from
 a) Lysosome b) Endoplasmic reticulum
 c) Mitochondria d) Cell membrane
63. The following diagrams represent the nitrogenous bases of nucleic acid molecules. Identify the correct combination.

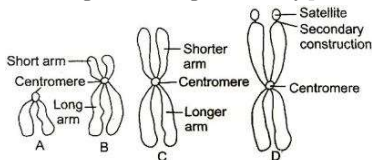


- a) A- Uracil, B- Adenine, C- Thymine, D- Guanine, E- Cytosine
 b) A- Uracil, B- Guanine, C- Cytosine, D- Adenine, E- Thymine
 c) A- Thymine, B- Adenine, C- Cytosine, D- Guanine, E- Uracil
 d) A- Uracil, B- Guanine, C- Uracil, D- Adenine, E- Cytosine

64. Extension of plasma membrane in prokaryotic cell is
 a) Mesosome b) Haploid c) Ribosome d) None of these
65. A biomembrane consists of lipids, proteins carbohydrates and water. These lipid molecules are
 a) Amphipathic
 b) Amphipathic
 c) Both polar hydrophilic and non-polar hydrophobic ends
 d) All of the above
66. Thread like protoplasmic projections on the free surface of absorptive cells (such as intestinal cells) are called
 a) Plasmodesmata b) Microfilaments c) Cilia d) None of these
67. are an exception to cell theory
 a) Bacteria b) Fungi c) Viruses d) Lichens
68. Structural lipids of cell membrane are
 a) Simple lipid b) Chromolipids c) Steroid d) Phospholipids
69. Quantasomes are present in
 a) Chloroplast b) Mitochondria c) Golgi body d) Lysosome
70. The chemical substances found most abundantly on the middle lamella are released into the phragmoplast by
 a) Endoplasmic reticulum b) Golgi complex
 c) Spindle fragments d) Interzonal fibres
71. According to widely accepted 'fluid mosaic model' cell membranes are semi-fluid, where lipids and integral proteins can diffuse randomly. In recent years, this model has been modified in several respects. In this regard, which of the following statement is incorrect?
 a) Proteins in cell membranes can travel within the lipid bilayer
 b) Proteins can remain confined within certain domains of the membrane
 c) Proteins can also undergo flip-flop movements in the lipid bilayer
 d) Many proteins remain completely embedded within the lipid bilayer
72. Okazaki fragments are joined in a correct sequence by
 a) DNA polymerase b) DNA ligase c) RNA polymerase d) Primase
73. Which of the following cell organelles stores hydrolytic enzymes?
 a) Centriole b) Lysosome c) Chromoplast d) Chloroplast
74. Cell is the fundamental structural and functional unit of all living organisms. This was evidenced by the fact that
 a) All cells arises by the fusion of two cells b) All cells are totipotent
 c) Subcellular components can regenerate a complete cell d) Anything less than a complete structure of a cell does not ensure independent living
75. What is mitoplast?
 a) Membraneless mitochondria b) Another name of mitochondria
 c) Mitochondria without outer membrane d) Mitochondria without inner membrane
76. Assembly of two subunits, 40S and 60S of the ribosome is
 a) 100S b) 80S c) 70S d) 50S
77. Cell membrane of eukaryotes is composed of
 a) Carbohydrates and proteins b) Proteins and lipids
 c) Carbohydrates and lipids d) Carbohydrates, lipids and proteins
78. Sigma factor is related to
 a) RNA polymerase b) DNA polymerase c) Both (a) and (b) d) None of these
79. The figures of cork cells as seen by Robert Hooke were published in the book
 a) *Origin of Species* b) *Genera Plantarum* c) *Micrographia* d) *Species Pantarum*
80. Robert Hooke thought about the cells that
 a) Something similar to veins and arteries of animals for conducting fluid.

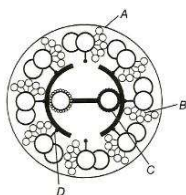
- b) Smallest structural unit
- c) Smallest functional unit
- d) Unit of heredity

81. Ribosomal RNA (*rRNA*) is synthesised in
 a) Nucleolus b) Nucleosome c) Cytoplasm d) Ribosome
82. Which of the following organelles does not contain RNA?
 a) Chromosome b) Plasmalemma c) Nucleolus d) Ribosome
83. In the given diagram of types of chromosomes, identify A-D



- a) A-Telocentric chromosome, B-Acrocentric chromosome, C-Submetacentric chromosome, D-Metacentric chromosome
 - b) A-Acrocentric chromosome, B-Telocentric chromosome, C-Metacentric, chromosome, D-Submetacentric chromosome
 - c) A-Submetacentric chromosome, B-Metacentric chromosome, C-Telocentric chromosome, D-Acrocentric chromosome
 - d) A-Metacentric chromosome, B-Submetacentric chromosome, C-Acrocentric chromosome, D-Telocentric chromosome
84. Read the following statements and identify the correct option given.
- I. In prokaryotic cell, the nuclear membrane, chloroplast, mitochondria, microtubules and different kinds of pili are absent.
 - II. In eukaryotic cell, the nuclear membrane, chloroplast, mitochondria and pili are present.
 - III. In prokaryotic cell, the ribosome is of 70 S type and in mitochondria of eukaryotic animal cell, the ribosome is 80 S type
- a) I and II are wrong; III is correct
 - b) I is correct; II and III are wrong
 - c) I and III are correct; III is wrong
 - d) I, II and III are wrong
85. Schleiden (1838) proposed that cell is the structural and functional unit of life. His idea was a/an
 a) Assumption b) Generalisation c) Hypothesis d) Observation
86. In DNA, which of the following is absent?
 a) Adenine b) Thymine c) Guanine d) Uracil
87. Which of the following enzymes has/have haeme as a prosthetic group?
 I. Catalase
 II. Carboxypeptidase
 III. Succinic dehydrogenase
 IV. Peroxidase
- a) I only b) I and II c) II and III d) I and IV
88. In prokaryotes, chromatophores are
 a) Specialised granules responsible for colouration of cells
 b) Structures responsible for organising the shape of the organism
 c) Inclusion bodies lying free inside the cells for carrying out various metabolic activities
 d) Internal membrane system that may become extensive and complex in photosynthetic bacteria
89. hnRNA undergoes two additional processing. Out of which, in one of them an unusual nucleotide (methyl guanosine triphosphate) is added to the 5' – end of hnRNA. This is known as
 a) Capping b) Tailing c) Splicing d) Termination
90. In prokaryotic cells, an organelle like the one is eukaryotic cells is
 a) Lysosomes b) Golgi apparatus c) Ribosomes d) Plastids
91. Amino acid binding site in *tRNA* is

- a) 5' end b) Anticodon loop c) CCA 3' end d) DHU loop
92. Protoplasm of a eukaryotic cell is called
a) Chloroplast b) Protoplast c) Cytoplasm d) Endoplast
93. In which cell organelles, a lipoprotein covering is absent?
a) Ribosomes b) Lysosomes c) Mitochondria d) Peroxisomes
94. The infoldings in mitochondria are known as
a) Cristae b) Matrix c) Cisternae d) Thylakoids
95. Which one is the correct statement about the bacterial cell envelope?
a) The outermost cell wall is followed by glycocalyx and then the plasma membrane
b) Cell envelope is chemically very simple and consists of only plasma membrane
c) The outermost glycocalyx is followed by cell wall and plasma membrane
d) The outermost glycocalyx is followed by plasma membrane and then the cell wall
96. Arrange the following cells in an ascending order of their size and select the correct option
I. Ostrich eggs
II. Mycoplasma
III. Bacteria
IV. Human RBCs
a) II→III→IV→I b) I→IV→III→II c) II→I→IV→III d) I→II→IV→III
97. Eukaryotes includes
a) Protists b) Fungi c) Plants d) All of these
98. Which enzyme joins DNA fragments?
a) DNA ligase b) DNA polymerase c) DNA gyrase d) Topoisomerase
99. What is C-value paradox?
a) Haploid DNA content b) Huge variations in C-values for all species
c) Constant C-value for all species d) Diploid DNA content
100. In fluid mosaic model of plasma membrane
a) Upper layer is non-polar and hydrophilic
b) Polar layer is hydrophobic
c) Phospholipids form a bimolecular layer in middle part
d) Proteins from a middle layer
101. If a length of DNA has 45,000 base pairs, how many complete turns will the DNA molecule takes?
a) 4,500 b) 45,000 c) 45 d) 450
102. The distance between two base pairs in DNA is
a) 34Å b) 3.4Å c) 0.34Å d) 20Å
103. Analyse the following pairs and identify the correct option given.
I. Chromoplasts – Contain pigments other than chlorophyll
II. Leucoplasts – Devoid of any pigments
III. Amyloplasts – Store proteins
IV. Aleuroplasts – Store oils and fats
V. Elaioplasts – Store carbohydrates
a) II and III are correct b) III and IV are correct
c) IV and V are correct d) I and II are correct
104. Which of the following is not relevant to the structure of double helical DNA?
a) The helix makes one complete spiral turn every 34Å
b) The diameter of the helix is 20Å
c) The distance between adjacent nucleotide is 3.4Å
d) Each strands of helix has a backbone made up of alternating ribose sugar and phosphate
105. RNA has uracil instead of
a) Cytosine b) Guanine c) Thymine d) None of these
106. Identify A to D in the diagrammatic representation of internal structure of centrioles



- a) A-Interdoulet bridge, B-Central microtubule, C-Plasma membrane, D-Radial spoke
- b) A-Plasma membrane, B-Central microtubule, C-Interdoulet bridge, D-Radial spoke
- c) A-Plasma membrane, B-Interdoulet bridge, C-Central microtubule, D-Radial spoke
- d) A-Plasma membrane, B-Interdoulet bridge, C-Radial spoke, D-Central microtubule

107. Which of the following cellular organelles is/are bound by a single membrane?

Peroxisomes, lysosomes, mitochondria

- a) Only peroxisomes but not lysosomes and mitochondria
- b) Both peroxisomes and lysosomes but not mitochondria
- c) All of the three organelles
- d) None of the three organelles

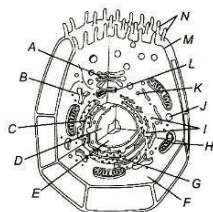
108. Red colour of tomato is due to

- a) β -carotene
- b) Anthocyanin
- c) Lycopene
- d) Erythrocyanin

109. What is the difference between RNA and DNA?

- a) Base
- b) Sugar
- c) Both (a) and (b)
- d) Phosphate

110. Correlate the given features of animal cells (I to VII) with their respective parts (A to N)



I. The structure replicates during mitosis and generates the spindle

II. Major site for synthesis of lipid

III. Power house of the cell

IV. store house of digestive enzyme

V. Increase the surface are for the absorption of materials

VI. Site of glycolysis

VII. Site for active ribosomal RNA synthesis

The correct option is

I II III IV V VI VII

a) L G H J N F D

b) M G H J N F D

c) L B H J N F D

d) M A H J N F D

111. Cell membrane was discovered by Schwann (1838) but it was named by

- a) Nageli and Cramer
- b) Schwann and Schleiden
- c) Robert Brown
- d)

112. Which of the following is not present in cell vacuoles?

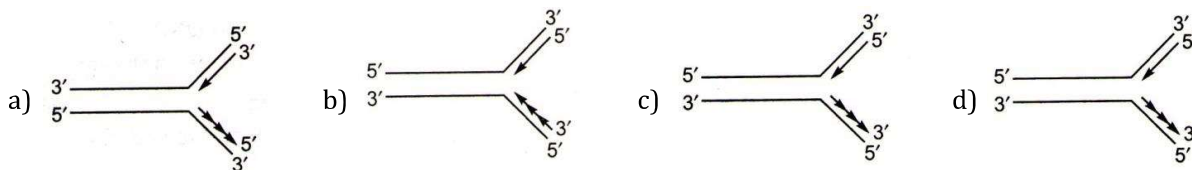
- a) Hydrolytic enzymes
- b) Latex of the rubber plant
- c) DNA
- d) Anthocyanins of the flowers

113. Plasmodesmata are

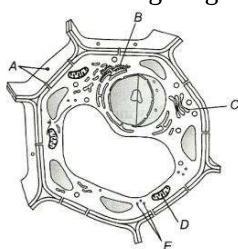
- a) Lignified cemented between cells
- b) Locomotory structures
- c) Membranes connecting the nucleus with plasmalemma
- d) Connections between adjacent cells

114. If a cell has a twice as much DNA as in a normal functional cell it means that the cell

- a) Is preparing to divide
- b) Has completed division



128. The mineral present in cell wall is
 a) Na b) Ca c) K d) Mn
129. Lipid bilayer is present in
 a) Plasma membrane b) Ribosome c) Chromosome d) Nucleolus
130. Endoplasmic reticulum is in continuation with
 a) Golgi body b) Nuclear wall c) Mitochondria d) Cell wall
131. Which of the following is the filler substance of the matrix of eukaryotic cell?
 a) Pectin b) Cutin c) Lignin d) Suberin
132. Which of the following does not contain DNA?
 a) Mitochondria b) Chloroplast c) Peroxisome d) Nucleus
133. The fluidity of membranes in a plant in cold weather may be maintained by
 a) Increasing the number of phospholipids with unsaturated hydrocarbon tails
 b) Increasing the proportion of integral proteins
 c) Increasing concentration of cholesterol in membrane
 d) Increasing the number of phospholipids with saturated hydrocarbon tail
134. In a double helix of DNA molecule of 10 coils, if there are 30 adenine nitrogen bases, what is the number of guanine nitrogen bases?
 a) 30 b) 60 c) 70 d) 80
135. The study related to the structure and function of a cell is called
 a) Physiology b) Cytology c) Histology d) Cellology
136. Cell theory was proposed by
 a) Virchow b) Schleiden and Schwann
 c) Robert Hooke d) Barbara McClintock
137. Pits present in the wall of plant cells helps to produce a protoplasmic continuum, called..... amongst cells
 a) Apoplast b) Symplast c) Osmosis d) None of these
138. Main component of ribosome are
 a) DNA and RNA b) RNA and protein c) DNA and protein d) Protein and lipids
139. Statements
 I. The four nucleotide bases are not necessarily present in DNA in exact equal proportions.
 II. The total amount of purines are equal to the total amount of pyrimidines.
 III. DNA ligase enzyme act to hydrolyse or breakdown a polynucleotide chain into its component nucleotides.
 IV. Nuclease enzymes are capable of restoring an intact DNA duplex.
 Of the above statements
 a) II is correct, but I, III and IV are wrong b) I and II are wrong but III and IV are correct
 c) I, II and III are correct but IV is wrong d) I and II are correct but III and IV are wrong
140. The following diagram shows some of the missing structures in a plant cell (A-E). Identify the structures

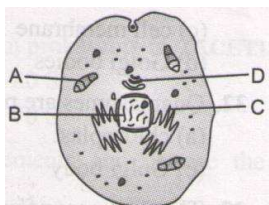


- a) A-Plasmodesmata, B-Rough endoplasmic reticulum, C-Golgi apparatus, D-Mitochondrion, E-Ribosomes
 b) A-Desmosome, B-Rough endoplasmic reticulum, C-Golgi apparatus, D-Mitochondrion, E-Ribosomes
 c) A-Plasmodesmata, B-Smooth endoplasmic reticulum, C-Golgi apparatus, D-Mitochondrion, E-Ribosomes
 d) A-Tight junction, B-Rough endoplasmic reticulum, C-Golgi apparatus, D-Mitochondrion, E-Ribosomes
141. Which is not true about sphaerosomes?
 a) Arise from ER
 b) Related to fat
 c) Single membrane bound structure
 d) Involved in photorespiration
142. Elaioplasts store
 a) Starch
 b) Proteins
 c) Fats
 d) Essential amino acids
143. Which of the following is the function of cytoskeleton?
 a) Intracellular transport
 b) Maintenance of cell shape and structure
 c) Support of the organelles
 d) All of the above
144. Vital stains are employed to study
 a) Living cells
 b) Frozen tissues
 c) Fresh tissues
 d) Preserved tissues
145. Which one of the following is not a plastid?
 a) Mitoplast
 b) Chromoplast
 c) Chloroplast
 d) Leucoplast
146. Which of these is wrongly matched?
 a) Chloroplasts - Chlorophyll
 b) Elaioplasts - Starch
 c) Chromoplasts - Carotenoids
 d) Amyloplasts - Carbohydrates
147. In DNA structure, Nobel Prize was given to
 a) Macria Wilkins
 b) Franklin
 c) Pauly
 d) Watson and Crick
148. Phagocytosis and pinocytosis are collectively termed as
 a) Endocytosis
 b) Suspension feeding
 c) Omnivores
 d) Mucous trap
149. The following ratio is generally constant for a given species
 a) A+G/C+T
 b) T+C/G+A
 c) G+C/A+T
 d) A+C/T+G
150. Cell theory is not applicable for
 a) Bacteria
 b) Fungus
 c) Algae
 d) Virus
151. In multicellular organisms, the 70 S ribosomes are found in the following parts of the cells
 a) Lysosomes
 b) Mitochondria
 c) Nucleus
 d) Endoplasmic reticulum
152. Ribosomes are particles about 200Å units in diameter consisting of protein and RNA. The percentage of protein and RNA respectively is
 a) 60% and 40%
 b) 40% and 60%
 c) 80% and 20%
 d) 50% and 50%
153. The term 'cytoplasm' and 'nucleoplasm' were given by
 a) Purkinje
 b) Strasburger
 c) Brown
 d) Flemming
154. Which is not true about prokaryotes?
 a) DNA is complexed with histones
 b) Well developed nucleus absent
 c) Mesosome present
 d) Mitochondria absent
155. Nuclear membrane is continuous with
 a) Rough endoplasmic reticulum
 b) Smooth endoplasmic reticulum
 c) Cell membrane
 d) Golgi bodies
156. Protein synthesis takes place in
 a) Ribosome
 b) Chloroplast
 c) Mitochondria
 d) Golgi bodies
157. Structure of nuclear membrane help in
 a) Organisation of the spindle
 b) Synapsis of homologous chromosome
 c) Nucleo-cytoplasmic exchange of material
 d) Anaphasic separation of daughter chromosome
158. The ATP synthase of chloroplasts is like that of

- a) Rounded structure found in cytoplasm near nucleus
 b) Rounded structure inside nucleus and having *r*RNA
 c) Rod-shaped structure in cytoplasm near the nucleus
 d) None of the above
170. The process by which cells lose their specialisation is called
 a) Differentiation b) Undifferentiation c) Dedifferentiation d) Premitotic division
171. Which one of the following nitrogenous bases is seen only in RNA?
 a) Adenine b) Thymine c) Uracil d) Cytosine
172. Golgi complex works for
 a) Excretion b) Respiration c) Secretion d) Reduction
173. Which statement is not true about prokaryotes?
 a) DNA is associated with histones b) Well-developed nucleus is absent
 c) Mesosome is present d) Mitochondria is absent
174. Which is not correct according to Chargaff's rule?
 a) $A + T = C + G$ b) $A + G = C + T$ c) $\frac{A + G}{C + T} = 1$ d) None of these
175. During DNA replication in prokaryotes, DNA is anchored to
 a) Chromosome b) Mesosome c) Nucleolus d) Ribosome
176. Correct sequence of layers of bacterial cell envelope is
 a) Cell membrane → glycocalyx → cell wall
 b) Glycocalyx → cell wall → cell membrane
 c) Glycocalyx → cell membrane → cell wall
 d) Cell wall → glycocalyx → cell membrane
177. What is true about *t*RNA?
 a) It binds with an amino acid at its, 3' end
 b) It has five double stranded regions
 c) It has a codon at one end which recognises the anticodon on messenger RNA
 d) It looks like clover leaf in the three dimensional structure
178. The endoskeleton of cell is made up of
 a) Deutoplasm b) Protoplasm
 c) Endoplasmic reticulum d) Cell wall
179. Autonomic genome system is present in
 a) Ribosomes and Golgi bodies b) Golgi bodies and mitochondria
 c) Mitochondria and chloroplasts d) Chloroplasts and ribosomes
180. Choose the correct statements
 I. Passive cells are larger in size
 II. Larger cells have lower surface volume ratio
 III. To remain active, larger cells are either cylindrical in shape or possess several extensions of the cell membrane, like microvilli
 IV. Microvilli are found in all those cells, which are active in absorption
 V. Microvilli (membrane infoldings) occurs in transfer cells found in plants in the region of absorption or secretion of nutrients
 Option containing all correct statements is
 a) I and IV b) I, II, III and IV c) I, III and II d) I, II, III, IV and V
181. Prokaryotic cells are generally..... and multiply more rapidly than the eukaryotic cells
 a) Large b) Small c) Convex d) Biconcave
182. Animal cell contains non-membrane bound organelles calledwhich helps in cell division
 a) Nucleus b) Centriole c) Mitochondria d) Vacuoles
183. In prokaryotes, genetic material is
 a) Basically naked b) Enveloped by a nuclear membrane

- c) Associated with histones
 184. Which of the character is not applicable to *t*RNA?
 a) It is the smallest of the RNAs
 c) It has a clover leaf like structure
 185. Choose the incorrect match.
 a) Nucleus – RNA
 c) Mitochondria – Respiration
 186. Which of the following is the site of lipid synthesis?
 a) Rough ER
 187. Which of the following cell organelles is rich in catabolic enzymes?
 a) Chloroplast
 188. There are special proteins that help to open up DNA double helix in front of the replication fork. These protein are
 a) DNA ligase
 189. Select the right option which relates to Schwann regarding the following statement
 I. He reported that cells have a thin outer layer which is today known as plasma membrane
 II. Cell wall is a unique character of the plant cell
 III. Body of plants and animals are composed of cells and product of cells
 Choose the correct option from below
 a) All are incorrect
 190. Within the cell, ribosomes are found in
 a) Cytoplasm
 b) Chloroplasts (in plants) and mitochondria
 c) Rough ER
 d) All of the above
 191. Which of the following characteristic is correct about cell of plant cells?
 a) Plays role in protection
 b) Helps in cell-cell interaction
 c) Provides a barrier to undesirable macromolecules
 d) All of the above
 192. Which one is single membrane cell organelle?
 a) Endoplasmic reticulum
 c) Lysosomes
 b) Mitochondria
 d) Chloroplast
 193. Middle lamella is composed of
 a) Carbohydrate
 b) Calcium pectate
 c) Protein
 d) Peptidoglycan
 194. When a molecule moves across a membrane independent of other molecules, the process is called
 a) Uniport
 b) Symport
 c) Antiport
 d) Facilitated diffusion
 195. Meselson and Stahl experiment proved
 a) DNA is a genetic material
 c) trasformation
 b) Central dogma
 d) Semi-conservation DNA replication
 196. Which one of the following remains absent in prokaryotes?
 a) Nuclear membrane
 b) Ribosome
 c) Cell wall
 d) Plasma membrane
 197. Thylakoids occur inside
 a) Mitochondria
 c) Golgi apparatus
 b) Chloroplast
 d) Endoplasmic reticulum
 198. Cell organelle common in Monera and Protista is
 a) Lysosome
 b) Chloroplast
 c) Ribosome
 d) Vacuole
 199. Ribozyme was discovered by
 a) Kuhne
 b) Duclaux
 c) Cech *et al*
 d) Altmann
 200. Cellular respiration is carried out by

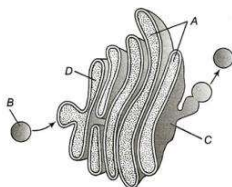
- a) Ribosome b) Mitochondria c) Chloroplast d) Golgi bodies
201. Which of the following enzyme is used in DNA multiplication?
 a) RNA polymerase b) DNA endonuclease c) Exonuclease d) DNA polymerase
202. Which of the following is correct for middle lamella of eukaryotic cell?
 a) It is formed as a cell plate during cytokinesis
 b) It is mainly consists of Ca-pectate
 c) It holds different neighbouring cells together
 d) All of the above
203. Polyribosomes are aggregation of
 a) Peroxisomes b) Ribosomes and *r*RNA
 c) Several ribosomes help together by a string of *m*RNA d) *r*RNA and *m*RNA
204. Subunits in prokaryotic ribosomes are
 a) 60S, 40S b) 50S, 30S c) 40S, 30S d) 50S, 20S
205. The RER in the cell synthesised protein which would be later used in building the plasma membrane. But it is observed that the protein in the membrane is slightly different from the protein made in the RER. The protein was probably modified in another cell organelle. Identify the organelle in the given diagram.



- a) D b) A c) B d) C
206. Plant cell may be without
 a) Plastids b) Vacuoles c) Centrioles d) Cell wall
207. Robert Hooke developed a microscope with which he studied the internal structures of the cell. His work is famous for the study of
 a) Cork cells b) Onion peel cells c) Human cheek cells d) Blood cells
208. The enzyme which helps to cut one strand of DNA duplex to release tension of coiling of two strands is
 a) DNA ligase b) DNA polymerase-I
 c) Topoisomerase d) Swielases (helicase or unwindases)
209. Cell wall consists of
 a) Lignin, hemicellulose, protein and lipid b) Hemicelluloses, cellulose, tubulin and lignin
 c) Lignin, hemicelluloses, pectin and lipid d) Lignin, hemicelluloses, pectin and cellulose
210. Which cell organelle is present in both prokaryotic and eukaryotic cell?
 a) Ribosome b) Mitochondria c) ER d) Nucleus
211. Which of the following statements are false?
 I. Most cells are tiny and their volume ranges from 1 to 1000 nm³.
 II. Some cells have the microvilli to increase the absorptive surface area.
 III. All cells arise from pre-existing cells.
 IV. In plants, translocation of solutes is performed by xylem vessels and tracheids.
 V. According to cell theory, all cells arise from abiotic material.
 a) I, III and V are false b) I, IV and V are false
 c) II, III and IV are false d) III, IV and V are false
212. Flagella of prokaryotic and eukaryotic cells differ in
 a) Type of movement and placement in cell
 b) Location in cell and mode of functioning
 c) Microtubular organisation and type of movement

- d) Microtubular organisation and function
213. The surface of the endoplasmic reticulum (ER) is covered with
a) Ribosome b) DNA c) RNA d) Glucose
214. Keeping in view the 'fluid mosaic model' for the structure of cell membrane, which one of the following statement is correct with respect to the movement of lipids and proteins from one lipid monolayer to the other (described as flip-flop movement)?
a) Both lipids and proteins can flip-flop
b) While lipids can rarely flip-flop, proteins cannot
c) While proteins can flip-flop, lipids cannot
d) Neither lipids nor proteins can flip-flop
215. Which of the following statements are correct?
I. Human RBC is about 7.0 μm in diameter
II. Cytoplasm is the main arena of cellular activities
III. The shape of the cells may vary with the function they perform
IV. Various chemical reactions occur in cytoplasm to keep the cell in the living state
Choose the correct option
a) I, III and IV b) I, IV and II c) I, II, III and IV d) II, III and IV
216. In prokaryotic cells,
a) Internal compartments are absent b) Nucleus is absent
c) Ribosomes are 70S d) All of the above
217. Which of the following statements regarding cilia is not correct?
a) The organised beating of cilia is controlled by fluxes of Ca^+ across the membrane
b) Cilia are hair-like cellular appendages
c) Microtubules of cilia are composed of tubulin
d) Cilia contain an outer ring of nine doublet microtubules surrounding two single microtubules
218. Glycocalyx is associated with
a) Nucleolus b) Plasma membrane c) Nucleus d) Nucleosome
219. Cell theory was formulated by
a) Schleiden and Schwann
b) Rudolf Virchow
c) Robert Brown
d) Robert Hooke
220. The main organelle involved in modification and routine of newly synthesised proteins to their destination is
a) Mitochondria b) Endoplasmic reticulum
c) Lysosome d) Chloroplast
221. Plasma membrane helps in
a) Transportation of only water in and out of cell
b) Protein synthesis
c) Osmoregulation
d) Nucleic acid synthesis
222. Which of the following is a part of endomembrane system of eukaryotic cell?
a) Peroxisomes b) Chloroplasts c) Mitochondria d) Golgi complex
223. I. It is the extension of plasma membrane into the cytoplasm
II. It helps in cell wall formation, DNA replication, respiration, secretion processes, increases the surface area of plasma membrane and enzymatic contents. It also helps in cytokinesis
III. It is the characteristic of bacterial cells
The above features are attributed to bacteria
a) Plasmid b) Nucleoid c) Mesosome d) Pilus
224. Solenoid is a structure of

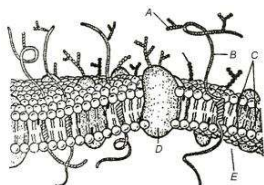
- a) Nucleosomal organisation with 10nm thickness
 b) Condensed chromatin fibre with 30nm diameter
 c) Highly condensed form of chromatid with 300 nm thickness
 d) Well organised chromatid with 700 nm thickness
225. DNA strand which is formed continuously in 5' → 3' direction is called
 a) Lagging strand b) Leading strand c) Template strand d) Stranded strand
226. Which of the following organelle is present in highest number in secretory cells?
 a) Dictyosome b) ER c) Lysosome d) Vacuole
227. Ribose sugar is present in
 a) RNA polymerase, RNA and ATP b) RNA only
 c) RNA polymerase and ATP d) RNA and ATP
228. All the statements are correct for prokaryotic cells, except
 a) Few prokaryotic have cell walls without muramic acid b) There is no well defined nucleus
 c) Prokaryotes shows a wide variety of shapes and functions d) The organisation of the prokaryotic cells is fundamentally similar
229. Which of the given statements are correct?
 I. *Escherichia coli* is a Gram (–) bacteria
 II. *Bacillus subtilis* is a Gram (+) bacteria
 III. Working of the Gram's stain in Gram (–) bacteria is due to high lipid content of the cell wall, which gets dissolved in organic solvents like acetone
 Choose the correct option
 a) I and III b) II and III c) I and II d) I, II and III
230. Ribosomes are attached to endoplasmic reticulum through
 a) Ribophorin b) Magnesium c) Peptidyl transferase d) tRNA
231. During replication of DNA, Okazaki fragments are formed in the direction of
 a) 3'→5' b) 5'→3' c) 5'→5' d) 3'→3'
232. In eukaryotic cell, thylakoids, if present,
 a) Are grouped inside the chloroplasts b) Lies freely in the cytoplasm
 c) Lies freely outside the cytoplasm d) Grouped outside the cytoplasm
233. Difference between rough and smooth endoplasmic reticulum is that
 a) Rough has ribosomes b) Smooth has ribosomes
 c) Smooth takes part in protein synthesis d) Both has F₁ - particles
234. Condensation product of adenine, ribose and phosphoric acid is named as
 a) Adenosine b) Adenylic acid c) Adenine phosphate d) None of these
235. The enzyme used to join the DNA fragments is
 a) Topoisomerase b) Adenosine deaminase
 c) DNA ligase d) DNA polymerase
236. Export firm of the body is
 a) Golgi bodies b) ER c) Nucleus d) Mitochondria
237. F₁ particles are present in
 a) Chloroplast b) Mitochondria c) Ribosome d) Rough ER
238. Which of the following pairs is mismatched?
 a) Pilli – involved in locomotion
 b) Cell wall – protective, determines shape, prevents from bursting
 c) Glycocalyx – may be capsule or slime layer
 d) Flagella, pilli and fimbriae – surface structures of bacterial cell
239. Chlorophyll in chloroplasts is located in
 a) Grana b) Pyrenoid c) Stroma d) Both (a) and (c)
240. Which one of the following is the correct labelling of given structure of Golgi apparatus?



- a) A-Cisternae, B-Vesicle, C-cis face, D-trans face
 b) A-Cisternae, B-Vesicle, C-trans face, D-cis face
 c) A-Tubules, B-Vesicle, C-trans face, D-cis face
 d) A-Vesicle, B-Cisternae, C-cis face, D-trans face
241. Ultimate unit of DNA is
 a) Nucleotide b) Nucleosome c) Nucleoside d) Polynucleotide
242. DNA is denatured by
 a) Heat b) Acid c) DNA polymerase d) Both (a) and (b)
243. Which sugar is present in nucleic acid?
 a) Pentose b) Hexose c) Fructose d) Glucose
244. In prokaryotic cells, which enzyme erases primer and fill gaps in DNA
 a) Helicase b) Primase c) DNA polymerase-II d) DNA polymerase-I
245. The crystals of calcium carbonate deposit in the cell is called
 a) Aleurone b) Crystalloid c) Globoid d) Core type
246. Cell membrane controls
 a) Exocytosis b) Endocytosis
 c) Both (a) and (b) d) Not controls movement of substance
247. Adenosine monophosphate is a
 a) Nucleoside of DNA b) Nucleotide of DNA c) Nucleoside of RNA d) Nucleotide of RNA
248. Smooth endoplasmic reticulum acts as a major site for the synthesis of
 a) Lipids and steroids b) Proteins c) Ribosomes d) DNA
249. The nucleus is separated from surrounding cytoplasm by nuclear membrane, which is
 a) Single-layered without pores b) Double-layered with pores
 c) Single-layered with pores d) Double-layered without pores
250. The Okazaki fragments in DNA chain growth
 a) Results in transcription
 b) Polymerises in the 3' to 5' direction and form replication fork
 c) Prove semi-conservative nature of DNA replication
 d) Polymerise in the 5' to 3' direction and explain 3' to 5' DNA replication
251. Highest number of enzymes is found in
 a) Lysosome b) chloroplast c) Mitochondria d) Peroxisome
252. In eukaryotes, the cell wall constitutes
 a) Primary and secondary walls
 b) Primary walls only
 c) Primary wall, middle lamella and secondary
 d) None of the above
253. Structural element of chromatin is
 a) Histone b) Acid protein and DNA
 c) Nuclear matrix d) Nucleosomes
254. Enzyme catalase is seen in
 a) Lysosome b) Spherosome c) Peroxisome d) All of these
255. Vacuoles are separated from cytoplasm by a membrane called
 a) Protoplast b) Cytoplasm c) Chloroplast d) Tonoplast
256. Complete the given NCERT statements (I-III) by choosing appropriate options for the blanks (A-D)
 I. Cells that have membrane bound nuclei are called ...A...

- II. In both ...B... and ...C... cells, cytoplasm is the main arena of cellular activities
 III. Cell that lack a membrane bound nucleus are called ...D...
- a) A-prokaryotic cells, B-plant cells, C-animal cells, D-eukaryotic cells
 b) A-eukaryotic cells, B-animal cells, C-plant cells, D-prokaryotic cells
 c) A-prokaryotic cells, B-plant cells, C-eukaryotic cells, D-animal cells
 d) A-eukaryotic cells, B-plant cells, C-prokaryotic cells, D-animal cells
257. Which one of the following pairs of nitrogenous bases on nucleic acids, is wrongly matched with the category mentioned against it?
- a) Thymine, uracil – Pyrimidines
 b) Uracil, cytosine – Pyrimidines
 c) Guanine, adenine – Purines
 d) Adenine, thymine – Purines
258. Which one of the following is correctly matched?
- a) Frederick Griffith - Discovered the phenomenon of transformation
 b) Linus Pauling - Isolated DNA for the first time
 c) Francis Crick - Proposed one gene-one polypeptide hypothesis
 d) George Beadle - Proposed the concept of inborn errors
259. A nucleoside is
- a) Purine/pyrimidine+phosphate
 b) Purine/pyrimidine+sugar
 c) Pyrimidine+purine+phosphate
 d) Purine+sugar+phosphate
260. The membrane potential of cell favours the
- a) Movement of cations into the cell
 b) Movement of anions into the cell
 c) Action of a proton pump
 d) Action of an electrogenic pump
261. The prokaryotic cell does not contain
- a) Chromosome
 b) Mitochondria
 c) Plasma membrane
 d) Ribosome
262. Histones are rich in
- a) Alanine and glycine
 b) Lysine and arginine
 c) Histidine
 d) Cysteine and tyrosine
263. Choose the incorrect option
- a) Centriole – Composed of tubulin
 b) Centrosome – Serves as microtubule organising centre
 c) Centriole – Present in all plants and animals
 d) Centrosome – Associated with nuclear membrane during interphase
264. Purines possess nitrogen at
- a) 1, 2, 4 and 6 positions
 b) 1, 3, 5 and 7 positions
 c) 1, 3, 7 and 9 positions
 d) 1, 2, 6 and 8 positions
265. Number of carbons in ring of deoxyribose sugar is
- a) Four
 b) Five
 c) Six
 d) Three
266. Single membrane bound organelles are
- a) Lysosome
 b) Spherosome
 c) Glyoxysome
 d) All of these
267. Which one of the following statements is incorrect about the properties of DNA?
- a) DNA is denatured when heated upto 70°C
 b) DNA shows high absorption of UV radiation at 260 mμ
 c) DNA directly participates in protein synthesis
 d) Pyrimidines of DNA are cytosine and thymine
268. The term mitochondria was given by
- a) Benda
 b) Altmann
 c) Palade
 d) de Duve
269. Cristae are associated with which of the following?
- a) Mitochondria
 b) Cytoplasm
 c) Protoplasm
 d) Endoplasmic reticulum
270. Fat storing granules are
- a) Elaioplast
 b) Amyloplast
 c) Aleuroplast
 d) None of these
271. The Golgi apparatus

- a) Is found only in animals
c) Is a site of rapid ATP production
- b) Is found in prokaryotes
d) Modifies and packages proteins
272. Acrosome is formed by
a) Mitochondria b) Golgi body c) Ribosomes d) Lysosome
273. Select the wrong statement from the following
a) Both chloroplasts and mitochondria contain an inner and an outer membrane
b) Both chloroplasts and mitochondria have an internal compartment, the thylakoid space bounded by the thylakoid membrane
c) Both chloroplasts and mitochondria contain DNA
d) The chloroplasts are generally much larger than mitochondria
274. Golgi apparatus is absent in
a) Higher plant b) Yeast
c) Bacteria and blue- green algae d) Liver cells
275. Organisation of a cell has not been achieved in
a) Bacteriophage b) Bacteria c) Diatom d) *Amoeba*
276. Cellular totipotency was first demonstrated by
a) F C Steward b) Robert Hooke c) T Schwann d) A v Leeuwenhoek
277. Out of the given cell organelles, which does not possess DNA?
a) Peroxisome b) Chloroplast c) Mitochondria d) Nucleus
278. 'Plasma gel' is the name of
a) Ectoplasm b) Endoplasm c) Protoplasm d) None of these
279. Which of the following feature is common to prokaryotes and many eukaryotes?
a) Cell wall is present
b) Chromosomes are present
c) Sub-cellular organelles are present
d) Nuclear membrane is present
280. Which one of the following organisms is not an example of eukaryotic cells?
a) *Escherichia coli* b) *Euglena viridis*
c) *Amoeba proteus* d) *Paramecium caudatum*
281. Find the correct combination, that can form a nucleotide of RNA.
a) Adenine + deoxyribose + phosphate b) Thymine + ribose + phosphate
c) Uracil + deoxyribose + phosphate d) Uracil + ribose + phosphate
282. One turn of the helix in a B-form DNA is approximately
a) 20 nm b) 0.34 nm c) 3.4 nm d) 2 nm
283. F_1 -particles present in mitochondria are
a) Episomes b) Spherosomes c) Oxyosomes d) Microsomes
284. DNA consists of two complementary nucleotide chains. If the sequence of nucleotides in one of the chains is AGCTTCGA then the complementary sequence of the other chain will be
a) TCGAAGCT b) TCGTATCG c) AATTCCGG d) TCGAACTG
285. In a hair pin model of RNA, which nitrogen base is present at the short end?
a) Adenine b) Guanine c) Thymine d) Cytosine
286. The thickness of unit membrane is
a) 20Å b) 35Å c) 55Å d) 75Å
287. The plasma membrane consists mainly of
a) Phospholipids embedded in a protein bilayer
b) Proteins embedded in a phospholipid bilayer
c) Proteins embedded in a polymer of glucose molecules
d) Proteins embedded in a carbohydrate bilayer
288. Phosphorus is present in
a) Protein b) DNA c) RNA d) Both (b) and (c)



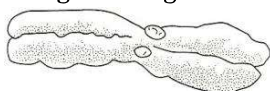
Components

1. Sugar
2. Protein
3. Lipid bilayer
4. Integral protein
5. Cytoplasm
6. Cell wall
7. External protein

The correct components are

- | | |
|----------------------------|----------------------------|
| a) A-1, B-2, C-3, D-4, E-5 | b) A-2, B-1, C-3, D-4, E-5 |
| c) A-1, B-2, C-3, D-6, E-4 | d) A-1, B-2, C-3, D-7, E-5 |

307. Which of the following is not a characteristic of prokaryotic cells?
- | | |
|-----------------------------------|------------------------------|
| a) Circular DNA | b) Mesosome |
| c) Photosynthetic membrane system | d) Membrane bound organelles |
308. Semi conservative replication of DNA was first demonstrated in
- | | |
|------------------------------------|----------------------------------|
| a) <i>Drosophila melanogaster</i> | b) <i>Escherichia coli</i> |
| c) <i>Streptococcus pneumoniae</i> | d) <i>salmonella typhimurium</i> |
309. Consider the following statements and choose the correct options
- I. The endomembrane system, include plasma membrane, ER Golgi complex, lysosomes and vacuoles.
 - II. ER helps in the transport of substances, synthesis of proteins, lipoproteins and glycogen.
 - III. Ribosomes are involved in protein synthesis.
 - IV. Mitochondria help in oxidative phosphorylation and generation of ATP.
- | | | | |
|---------------------------|-----------------|------------------|-------------------|
| a) II, III and IV correct | b) I is correct | c) II is correct | d) III is correct |
|---------------------------|-----------------|------------------|-------------------|
310. Lysosomes are reservoirs (store house) of
- | | |
|-----------------------|----------------------------|
| a) Hydrolytic enzymes | b) Secretory glycoproteins |
| c) RNA and protein | d) Fats or sugars or ATP |
311. The nucleolus is the site of formation of
- | | | | |
|-------------------|----------------|--------------|----------------|
| a) Spindle fibres | b) Chromosomes | c) Ribosomes | d) Peroxisomes |
|-------------------|----------------|--------------|----------------|
312. Which of the following four cell structures is correctly matched with the accompanying description?
- | | |
|--------------------|--|
| a) Plasma membrane | – Lipid bilayer, in which proteins are embedded |
| b) Mitochondria | – Bacteria like elements with inner membrane highly folded |
| c) Chloroplasts | – Bacteria like elements with inner membrane forming sacs containing chlorophyll, found in plant cells and algae |
| d) Golgi apparatus | – Stacks of flattened vesicles |
313. In eukaryotic cells, genetic material or DNA is organised into
- | | |
|------------------------------|----------------------|
| a) Chromosomes | b) Chromatin |
| c) Chromosomes and chromatin | d) None of the above |
314. In a DNA, percentage of thymine is 20%. What is the percentage of guanine?
- | | | | |
|--------|--------|--------|--------|
| a) 20% | b) 40% | c) 30% | d) 60% |
|--------|--------|--------|--------|
315. The given diagram shows a chromosome



329. Identify the palindromic sequence in the following
- a) $\frac{\text{GAATTC}}{\text{GAATTC}}$ b) $\frac{\text{GAATTC}}{\text{CTTUUG}}$ c) $\frac{\text{GAATTC}}{\text{CUUAAG}}$ d) $\frac{\text{GAATTC}}{\text{CTTAAG}}$
330. The largest subunit of prokaryotic ribosomes is
- a) 30S b) 40S c) 50S d) 60S
331. In RNA, which is absent?
- a) Adenine b) Guanine c) Thymine d) Cytosine
332. Most of the bacterial cell envelope consists of
- a) Only glycocalyx
b) A tightly bound three layered structure
c) The cell membrane
d) Cell wall and cell membrane
333. DNA acts as a template for synthesis of
- a) RNA b) DNA c) Both (a) and (b) d) Protein
334. Which one of the following has its own DNA?
- a) Mitochondria b) Dictyosome c) Lysosome d) Peroxisome
335. What is a genophore?
- a) DNA in prokaryotes b) DNA and RNA in prokaryotes
c) DNA and protein in prokaryotes d) RNA in prokaryotes
336. Select the double membrane bound cell organelles
- a) Chloroplast b) Nucleus c) Mitochondria d) All of these
337. Fluid mosaic model was given by
- a) Beadle and Tatum b) Jacob and Monod c) Singer and Nicolson d) Watson and Crick
338. The main arena of various types of activities of a cell is
- a) Plasma membrane b) Mitochondrion c) Cytoplasm d) Nucleus
339. In plants, vacuole contains
- a) Soil b) Water and dissolved substance
c) Cytoplasm d) All of the above
340. The process of removal of introns and joining of exons is called
- a) Capping b) Tailing c) Termination d) Splicing
341. In chloroplasts, chlorophyll is present in the
- a) Outer membrane b) Inner membrane c) Thylakoids d) Stroma
342. '*Omnis cellula-e-cellula*' (all cells arises from pre-existing cells). This concept was given by
- a) Schleiden and Schwann b) Virchow
c) Robert Brown d) Leeuwenhoek
343. Difference between prokaryote and eukaryote is in
- a) Cell size b) Cell shape
c) Chemical composition of protoplasm d) Organisation of nuclear material
344. Unicellular microscopic organism were first studied by
- a) Pasteur b) Priestley c) Robert Hooke d) Leeuwenhoek
345. Which of the following is characteristic of phospholipids of plasma membrane?
- a) One non-polar head and two polar tails
b) One polar head and two non-polar tails
c) Two non-polar heads and one polar tail
d) Two polar heads and one non-polar tail
346. Cell membrane is made up of
- a) Protein b) Cellulose
c) Lipids d) Lipids, carbohydrates and protein
347. The double helix model of Watson and Crick is known as
- a) C-DNA b) B-DNA c) Z-DNA d) D-DNA

348. Which of the following statement is incorrect about plasmids?
 a) They are extrachromosomal DNA
 b) They are used in genetic engineering
 c) They help in the replication of nucleoid
 d) They are small, circular and confer certain unique phenotypic characters to some bacteria like resistance to antibiotics
349. *E. coli* about to replicate was placed in a medium containing radioactive thymidine for five minutes. Then it was made to replicate in a normal medium. Which of the following observation will be correct?
 a) Both the strands of DNA will be radioactive
 b) One strand radioactive
 c) Each half strand radioactive
 d) None is radioactive
350. Golgi body arises from
 a) Plasma membrane b) ER c) Vacuole d) Chloroplast
351. Telomerase is an enzyme, which is a
 a) Repetitive DNA b) RNA c) Simple protein d) Ribonucleoprotein
352. In *Neisseria gonorrhoeae*, fimbriae takes part in ...A..., while in *Escherichia coli* it helps in ...B...
 Choose appropriate options for A and B to complete the given statement
 a) A-conjugation; B-attachment
 b) A-attachment; B-conjugation
 c) A-movement only; B-conjugation
 d) A-attachment; B-movement only
353. Which of the following statements are correct?
 I. Nerve cells are the smallest of all cells
 II. Bacteria are 3-5 μm in length
 III. The largest cell is the egg of an ostrich
 IV. Mycoplasma is the smallest cell (0.3 μm in length)
 Choose the correct option
 a) I, II, III and IV b) Only II c) Only I d) II, III and IV
354. The haploid content of human DNA is
 a) 3.2×10^9 bp b) 3.3×10^9 kbp c) 4.6×10^6 bp d) 48502bp
355. Which is the common point of similarity between DNA and RNA?
 a) Both are double stranded b) Both have identical sugar molecules
 c) Both have identical pyrimidine bases d) Both are polymers of nucleotides
356. In prokaryotic cell, flagella, if present are
 I. single-stranded
 II. double-stranded
 III. without differentiation of axoneme and sheath
 IV. with differentiation of axoneme and sheath
 Choose the correct option
 a) Only I b) Only III c) I and II d) I and III
357. Meselson and Stahl experiment on semi-conservative replication demonstrates
 a) 60% radioactive, 50% non-radioactive b) 50% non-radioactive
 c) 50% radioactive d) None of the above
358. Which of the following is the site of lipid synthesis?
 a) Rough ER b) Smooth ER c) Golgi bodies d) Ribosome
359. During endocytosis, the cell
 a) Divides its cytoplasm during mitosis
 b) Digests itself
 c) Engulfs and internalises materials using its membrane
 d) Enables the extracellular digestion of large molecules
360. DNA repairing is done by
 a) Ligase b) DNA polymerase-III c) DNA-polymerase-II d) DNA-polymerase-I

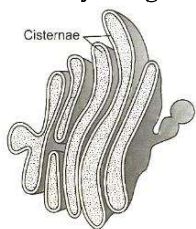
361. Which of the following statements are correct about prokaryotic cells?
 I. DNA lies freely in the cytoplasm, not associated with any organelle
 II. The amount of DNA do not change as there are no haploid and diploid stages
 III. Transcription and translation occurs in the cytoplasm
 IV. Protein synthesis occurs only in the cytoplasm
 Correct option regarding the above statement is
 a) I, II and III b) I and II c) Only I d) I, II, III and IV
362. The main function of lysosome is
 a) Sexual reproduction b) Extracellular digestion
 c) Intracellular digestion d) Both (b) and (c)
363. Which of the following cell(s) is/are exceptions to the cell theory?
 a) Virioids b) Prions c) Viruses d) All of these
364. Naked DNA without histones is found in
 a) Prokaryotes b) Eukaryotes c) Protozoa d) Coelenterate
365. Which is properly paired?
 a) Golgi apparatus – Breaking of complex macromolecules
 b) Endoplasmic reticulum – Protein synthesis
 c) Chloroplast – Photosynthesis
 d) Mitochondria – Oxidative phosphorylation
366. Which of the following statement is correct about the cell wall of prokaryotic cell?
 I. Cell wall, if present, possesses muramic acid
 II. Cell wall, if presents, possesses acitic acid
 III. Cell wall is always absent
 The correct options is
 a) Only I b) Only II c) I, II and III d) Only III
367. Mechanical support, enzyme circulation, protein synthesis and detoxification of drugs are the functions of
 a) ER b) Ribosomes c) Dictyosomes d) Chloroplast
368. An organelle with an internal cross section showing characteristic 9 + 2 morphology is the
 a) Microtubule b) Microfilament c) Cilium or flagellum d) Cytoskeleton
369. The RNA primer is used in
 a) Translation b) Replication c) Conjugation d) Transformation
370. Genes present in the cytoplasm of eukaryotic cells are found in
 a) Mitochondria and inherited *via* egg cytoplasm
 b) Lysosomes and peroxisomes
 c) Golgi bodies and smooth endoplasmic reticulum
 d) Plastids are inherited *via* male gamete
371. Which of the following pairs lack the unit membrane?
 a) Nucleus and ER b) Mitochondria and chloroplast
 c) Ribosome and nucleolus d) Golgi body and lysosome
372. Which of the following statements are correct?
 I. Mycoplasmas are the smallest cells
 II. Nerve cells are some of the longest cells
 III. Ribosomes are non-membrane bound organelles found only in eukaryotic cells
 IV. The cytoplasm is the main arena of cellular activities only in plant cells
 a) I, II and III b) I and II c) II and III d) I, II, III and IV
373. Schwann proposed a cell theory according to which
 a) Each cell of the body posseses the same genetic information
 b) All life activities of the organisms are present in miniature form in each and every cell of its body
 c) Bodies of animals and plants are made up of cells and their products
 d) A new cell always develops by the division of pre-existing cells

374. The length of DNA having 23 base pairs is
 a) 78Å b) 78.4Å c) 74.8Å d) 78.2Å
375. Which of the following subunits of ribosome is composed of 23 S rRNA and a 5 S mRNA + 32 different proteins?
 a) 50S b) 70S c) 30S d) 60S
376. Which of the following statements are correct?
 I. A multicellular organism is composed of mainly three types of cells
 II. Undifferentiated cells are stem cells and are unspecialised cells, which usually possesses the power of division
 III. Differentiated cells are post-mitotic cells and are specialised to perform specific functions
 IV. Dedifferentiated cells are differentiated cells which revert to undifferentiated state to take over the function of division
 a) I, II and III b) Only I c) Except I d) I, II, III and IV
377. Ribosomes may also be called
 a) Microsome b) Dictyosome c) Ribonucleoprotein d) Oxysomes
378. The scientist who was awarded Nobel-Prize in 1959 for *in vitro* synthesis of polyribonucleotide?
 a) Mendel b) Calvin c) Khurana d) Ochoa
379. Which of the following statements regarding mitochondrial membrane is not correct?
 a) The outer membrane is permeable to all kinds of molecules
 b) The enzymes of the electron transfer chain are embedded in the outer membrane
 c) The inner membrane is highly convoluted forming a series of infoldings
 d) The outer membrane resembles a sieve
380. In a prokaryotic cell, the ratio of A + T/G + C is
 a) > 1 b) < 1 c) = 1 d) None of these
381. Mitochondria are semi-autonomous as they possess
 a) DNA b) DNA and RNA
 c) DNA, RNA and ribosomes d) Protein
382. Many cells function properly and divide mitotically even though they do not have
 a) Plasma membrane b) Cytoskeleton c) Mitochondria d) Plastids
383. In a DNA segment having six coils, there are 22 nitrogen base pair linked by two hydrogen bonds. How many cytosine bases are found in that segment?
 a) 22 b) 38 c) 44 d) 76
384. The chromosome in which centromere lies slightly away from the middle of the chromosome resulting in one shorter arm and one longer arm, is called
 a) Metacentric b) Submetacentric c) Acrocentric d) Telocentric
385. A cell organelle that is exceptionally rich in hydrolytic enzymes is
 a) Ribosome b) Endoplasmic reticulum
 c) Lysosome d) Mitochondria
386. Term basal body is associated with the development of
 a) Cilia and flagella b) Cell plate c) Phragmoplast d) Kinetochore
387. Sequence of DNA (non- coding) is known as
 a) Exon b) Intron c) Cistron d) None of these
388. Tonoplast is a membrane, which surrounds
 a) Ribosome b) Mitochondria c) Vacuole d) Cytoplasm
389. Lipid molecules in plasma membrane are arranged in which manner?
 a) Scattered b) Series c) Alternate d) Head parallel
390. F₁-particles comprise of
 a) Head and base b) Base and stalk c) Head and stalk d) Head, base and stalk
391. Which of the following statement was not explained in the cell theory given jointly by Schleiden and Schwann?

- a) All living organisms are composed of cells and their products
 b) Cell is the structural and functional unit of living organisms
 c) Formation of new cells
 d) None of the above
392. For the study of structure of nucleus, the best cell is
 a) Cell in the interphase
 b) Cell in the late prophase
 c) Cell in the divisional phase
 d) Cell in the meiotic phase
393. Cell organelle without a membrane is
 a) Mitochondria
 b) Liposomes
 c) Ribosome
 d) Microsome
394. Nobody can have life if its constituent parts are not formed of cells. It was observed by
 a) Robert Hooke
 b) Mathias Schleiden
 c) Lamarck
 d) Louis Pasteur
395. If the cell wall of a cell is removed, the remaining is called
 a) Etioplast
 b) Aleuroplast
 c) Amyloplast
 d) Protoplast
396. The statement *omnis cellula e cellula* of Rudolf Virchow has been taken from his book
 a) Cellular Pathology
 b) Cellular Potency
 c) Micrographia
 d) Scala Naturae
397. Carrier ions like Na⁺ facilitate the absorption of substances like
 a) Amino acids and glucose
 b) Glucose and fatty acids
 c) Fatty acids and glycerol
 d) Fructose and some amino acids
398. The transport of metabolites across the biomembrane occurs through
 a) Passive transport
 b) Active transport
 c) In case of bacteria, plasma membrane forms extensions to form special membranous structure called mesosomes
 d) All of the above
399. The number of base pairs per helical turn in Z-DNA is
 a) 10
 b) 11
 c) 12
 d) 13
400. Important site for formation of glycoproteins and glycolipids is
 a) Golgi apparatus
 b) Plastid
 c) Lysosome
 d) Vacuole
401. Which of the following represents prokaryotic cells?
 a) PPL0
 b) Mycoplasma
 c) Bacteria
 d) All of these
402. Movement of cytoplasm around the vacuole in the cell is called as
 a) Circulation
 b) Rotation
 c) Somersault
 d) Regulation
403. Which of the following statement is not correct for prokaryotic cell?
 a) Prokaryotes have no chromosomes and therefore, lack DNA
 b) Prokaryotic flagella are similar in structure to eukaryotic flagella
 c) Because prokaryotes do not contain organelles, they cannot perform photosynthesis or carry out cellular respiration
 d) All of the above
404. DNA can be formed by
 a) Transaminase
 b) Lyases
 c) RNA dependent DNA polymerase
 d) All of the above
405. Select the correct fundamental features of cell theory
 I. All cells are basically alike in their chemistry and physiology
 II. All living organisms are composed of cells and their products
 III. Each cell is made of a small mass of protoplasm containing a nucleus inside and a plasma membrane with or without a cell wall outside
 IV. Activities of an organism are the sum total of activities and interaction of its constituent cells
 Correct option regarding the statement is
 a) All are incorrect
 b) II and III are correct
 c) II, III and IV are correct
 d) All are correct

406. Prokaryotic ribosome has sedimentation coefficient of
 a) 80S b) 70S c) 40S d) 60S
407. The plasmid DNA confers certain unique characters to bacteria in which they are found. This include
 I. resistance to antibiotics
 II. no resistance to antibiotics
 III. monitor bacterial transformation with foreign DNA
 The correct option is
 a) Only I b) Only II c) I and III d) II and III
408. The cell as a basic unit of structure of living things was discovered by
 a) Aristotle b) Robert Hooke
 c) Schleiden and Schwann d) Gregor Mendel
409. What is the common between chloroplasts, chromoplasts and leucoplasts?
 a) Presence of pigments b) Possession of thylakoids and grana
 c) Storage of starch, proteins and lipids d) Ability to multiply by a fission-like process
410. Wall of eukaryotic cell (fungus) is made up of a polymer of
 a) α , 1-4 acetyl glucosamine b) β , 1-4 acetyl glucosamine
 c) α , β , 1-4 acetyl glucosamine d) Acetyl glucosamine
411. Suicidal bags are
 a) Lysosomes b) Golgi bodies c) Ribosomes d) Chloroplast
412. An analysis of a DNA (double strand) sample yielded 18% cytosine. What would be the percentage of other bases in this sample?
 a) T- 32%, A-32%, G-18% b) T-32%, A-18 %, G-32%
 c) T-18%, A-32%, G-32% d) T-40%, A-22%, G-20%
413. Which of the following is not a function of vacuole in plant cell?
 a) Storage b) Waste disposal
 c) Cell elongation and protection d) Production of the hydrogen peroxide
414. Inner membrane of mitochondria forms
 a) Cisternae b) Cristae c) Thylakoids d) Lamellae
415. Plasma membrane is made up of
 a) Lipid, protein and water b) Lipid, protein and manganese
 c) Lipid and carbohydrate d) Lipid, protein and carbohydrates
416. The diameter of Z-DNA is
 a) 34Å b) 20Å c) 18Å d) 45Å
417. Many bacteria have small circular DNA outside the genomic DNA. These smaller DNA are called
 a) Plasmids b) Mesosome c) Nucleoid d) None of these
418. Glyoxylate cycle occurs in
 a) Lysosomes b) Ribosomes c) Glyoxysomes d) Peroxisomes
419. A conspicuous rounded body present in nucleoplasm and attached to a particular chromosome at a definite place is
 a) Plasmid b) Karyolymph c) Nucleolus d) Nuclear reticulum
420. During replication of a bacterial chromosome, DNA synthesis starts from a replication origin site and
 a) RNA primers are involved b) Is facilitated by telomerase
 c) Moves in one direction of the site d) Moves in bi-directional way
421. Nucleotide consists of
 a) Phosphate only b) Phosphate and sugar only
 c) Phosphate, sugar and nitrogen base d) Phosphate and nitrogen base only
422. The 'Power house' of cell is
 a) Mitochondria b) Lysosome c) Ribosome d) Golgi complex
423. Bacterial flagellum consists of all of the following components except
 a) Microtubule b) Filament c) Basal body d) Hook

424. Middle lamella is mainly composed of
 a) Hemicellulose b) Muramic acid c) Calcium pectate d) Phosphoglycerides
425. Identify the given figure



- a) RER b) SER c) GB d) None of these
426. RNA is not found in
 a) Chromosome b) Plasmalemma c) Nucleolus d) Ribosome
427. Two animal cells are interconnected by
 a) Plasmodesmata b) Cell Wall c) Desmosome d) Plasma membrane
428. One of the nucleotides of DNA is
 a) Adenine
 b) Deoxyadenylic acid
 c) Adenosine
 d) Deoxyuridine phosphate
429. Golgi apparatus
 I. transports and modifies material.
 II. Secrete mucin in respiratory tract.
 III. Secretes slime in insectivorous plants
 What is correct?
 a) I is incorrect, but II and III are correct b) II is incorrect, but I and III are correct
 c) II and III are incorrect but I is correct d) None incorrect all correct
430. If an isolated strain of DNA is kept at 80-90°C, then,
 a) It changes into RNA b) It breaks into two fragments
 c) It breaks into many fragments d) It uncoils and the two strands separate
431. Which one of the following structures between two adjacent cells is an effective transport pathway?
 a) Plasmodesmata b) Plastoquinones
 c) Endoplasmic reticulum d) Plasmalemma
432. Coupling factor 'F' is found in
 a) Stroma b) Matrix c) Thylakoids d) Ribosomes
433. Which of the following enzymes helps in crossing plasma membrane?
 a) Protease b) Pepsin c) Dehydrogenase d) Permease
434. Which one is referred to as soluble RNA?
 a) mRNA b) tRNA c) rRNA d) ssRNA
435. Which of the following is not true for a eukaryotic cell?
 a) It has 80S type of ribosome present in the mitochondria
 b) It has 80S type of ribosome present in the cytoplasm
 c) Mitochondria contains circular DNA
 d) Membrane bound organelles are present
436. Secondary cell wall grows by
 a) Deamination b) Calcicole c) Apposition d) None of these
437. Fat is stored in the plant cell in
 a) Lysosome b) Spherosome c) Microsome d) Peroxisome
438. If a DNA sequence is same as that of a mRNA copy that is translated into protein, it is called
 a) Sense b) Antisense c) Intron d) Exon
439. Read the following statements and select correct options for prokaryotic cells

- I. They are generally smaller than eukaryotic cells
 - II. They multiply more rapidly than the eukaryotic cells
 - III. They are presented by bacteria, BGA mycoplasma and PPLO (Pleura Pneumonia Like Organism)
- a) II and I b) II and III c) I and III d) I, II and III

440. Which of the following are properties of reserved cells?

- a) They are differentiated and they have capacity of cell division
- b) They are undifferentiated and they do not have capacity of cell division
- c) They are differentiated and they do not have capacity of cell division
- d) They are undifferentiated and they have capacity of cell division

441. The thylakoid in chloroplast are arranged as

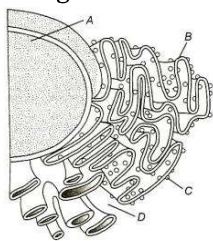
- a) Interconnected disc b) Interconnected sacs c) Stacked discs d) None of these

442. Consider the following statements and choose the correct options

- I. The endomembrane system includes plasma membrane, ER, Golgi complex, lysosomes and vacuoles
- II. ER helps in the transport of substances, synthesis of proteins, lipoproteins and glycogen
- III. Ribosomes are involved in protein synthesis
- IV. Mitochondria helps in oxidative phosphorylation and generation of ATP

- a) II, III and IV b) Only I c) Only II d) Only III

443. Identify the components labelled *A, B, C, D* and *E* in the diagram given below from the list I to VIII given along with it



Components

- I. Cristae of mitochondria
- II. Inner membrane of mitochondria
- III. Cytoplasm
- IV. Smooth endoplasmic reticulum
- V. Rough endoplasmic reticulum
- VI. Mitochondrial matrix
- VII. Ribosome
- VIII. Nucleus

The correct components are

A B C D E

- a) VIII V VII III IV b) I IV VII VI III c) VI V IV VII I d) V I I II IV

444. Membrane that covers the vacuole in a plant cell is called

- a) Tonoplast b) Tonoplasm c) Jacket d) Cell membrane

445. Read the given statements and select the correct option

- I. In Golgi complex, the cisternae have *cis* face and *trans* face
 - II. The *cis* face and *trans* face of Golgi complex are called forming face and maturing face respectively
- a) Statement I is correct and statement II is incorrect
 - b) Both statements are incorrect
 - c) Both are correct but statement II is the correct explanation of statement I
 - d) Both are correct, but statement II is not the correct explanation of statement I

446. How many binding sites does ribosome have for *tRNA* molecules?

- a) Two b) Three c) Four d) None of these

447. Which of the following is structural subunit of DNA?

- a) Protein b) Carbohydrate c) RNA d) Nucleotides

448. Most prokaryotic cells, mainly the bacterial cells, have
 a) A chemically complex cell envelope
 b) A chemically simple cell envelope
 c) Cell envelope only in the form of a cell membrane
 d) No cell envelope
449. Which one of the following organelles is not surrounded by any membrane?
 a) Mitochondrion
 b) Vacuole
 c) Endoplasmic reticulum
 d) ribosome
450. Read the statements given below with regard to the functions performed by Golgi apparatus?
 I. Transport and chemically modify the materials contained within it
 II. Secrete mucin in the respiratory tract.
 III. Secrete slime in the insectivorous plants.
 Which of the following is the correct answer?
 a) I is wrong but II and III are correct
 b) II is wrong but I and III are correct
 c) II and III are wrong but I is correct
 d) All are correct
451. Which of the following differentiate plant cells from animal cells?
 a) Large vacuole, plastid and cell wall
 b) Cell wall, plastid and centriole
 c) Cell wall, plastid and mitochondria
 d) Cell membrane, plastid and cell wall
452. The types of ribosome found in prokaryote is
 a) 100 S
 b) 80 S
 c) 60 S
 d) 70 S
453. The maximum amount of calcium pectate is present in
 a) Primary cell wall
 b) Secondary cell wall
 c) Middle lamella
 d) Cell membrane
454. DNA is present in
 a) Chromosomes and dictyosomes
 b) Chloroplasts and lysosomes
 c) Mitochondria and chloroplasts
 d) Mitochondria and endoplasmic reticulum
455. Subunits of 80 S ribosome are
 a) 40 S
 b) 60 S
 c) Both (a) and (b)
 d) None of these
456. 'It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material'. This is written by
 a) Meselson and Stahl
 b) Archibold Garrod
 c) Severo Ochoa
 d) Watson and Crick
457. Clover leaf secondary structure of tRNA has anticodon arm which
 a) Contains in its loop three nucleotides of the codon
 b) Contains in its loop three nucleotides of the anticodon
 c) Contains in its no nucleotides
 d) Both (a) and (b)
458. Which of the following statements are correct for eukaryotic cells?
 I. Two envelope organisation
 II. The flagella if present, are 11 stranded with differentiation of axonema and sheath
 III. Organised nucleus
 IV. Cell wall without muramic acid
 Choose the correct option
 a) I and II
 b) I and III
 c) Only IV
 d) I, II, III and IV
459. A nucleoid represents the genetic material of prokaryotes. It is known as
 a) Prochromosome
 b) Genophore
 c) Incipient nucleus
 d) All of these
460. Nucleic acid occurs in
 a) Golgi body
 b) Lysosomes
 c) Cytoplasm
 d) Mitochondria and chloroplast
461. Assembly of two subunits 40 S and 60 S of the ribosome is
 a) 100 S
 b) 80 S
 c) 70 S
 d) 50 S
462. Flagella of prokaryotic and eukaryotic cells differ in

- a) Type of movement and placement in cell
 b) Location in cell and mode of functioning
 c) Micro-tubular organisation and type of movement
 d) Micro-tubular organisation and function
463. DNA replication includes
 a) DNA ligase
 b) DNA polymerase and ligase
 c) RNA polymerase
 d) All of the above
464. Mesosomes are the infoldings of cells membrane, which
 I. helps in cell wall formation, DNA replication and respiration
 II. increases the surface area of plasma membrane
 III. are present in both prokaryotic and eukaryotic cells
 Choose the correct option
 a) II and III b) I and II c) I and III d) I, II and III
465. The cell organelle associated with intracellular digestion of macromolecules is
 a) Lysosome b) Peroxisome c) Polysome d) Dictyosome
466. According to cell doctrine, which of the following statements are incorrect?
 I. The bodies of all living beings are made up of cells and their products
 II. Cells are the basic units of structure in the body of living organisms
 III. Cells are the basic units of function in living organisms that is, the activities of an organisms are the sum total of the activities of its cells
 IV. Genetic information is stored and expressed inside the cells
 Choose the correct option
 a) II and III b) I and II c) Only I d) I, II, III and IV
467. Long flattened, usually unbranched units arranged in parallel stacks in endoplasmic reticulum are called
 a) Cisternae b) Cristae c) Vesicles d) Tubules
468. Assume that an actively respiring cell has 3x number of K^+ in its cytoplasm and 2x number of K^+ entered into the cell. What is the process by which K^+ transport has taken place?
 a) Primary active transport b) Secondary active transport
 c) Diffusion d) Passive transport