

Test Code: A



BIOPEGEDIA BIOLOGY

NEET-UG, CUET-PG-LIFE SCIENCES & BIOLOGY ALLIED EXAMS

NEET-UG Biology Test Series — Test 1

Cell The Unit of Life

Date: 2026-07-07

Duration: 60 Min

Max. Marks: 360

Name: _____

Roll No: _____

Batch: _____

GENERAL INSTRUCTIONS

1. This booklet contains 90 multiple-choice questions in Biology. All questions are compulsory.
2. Each question has four options, out of which only ONE is correct. Choose the most appropriate answer.
3. Marking scheme: +4 for each correct answer, -1 for each incorrect answer. Unattempted questions carry zero marks.
4. Do not write or mark anywhere on this booklet except in the space provided for rough work.
5. Use of calculators, mobile phones, log tables, or any other electronic device is strictly prohibited.
6. Ensure that the booklet is complete and has no missing or repeated pages before starting.
7. Rough work must be done only in the space provided at the end of the booklet.
8. Hand over the booklet to the invigilator at the end of the test. It may not be retained by the candidate.

ANSWER KEY & RESULTS

1. BioPedia Website: <https://biopediafoundation.com>
2. WhatsApp Groups & Student Contacts available on request



Solved Test 1

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1.

The concept 'Omnis cellula-e cellula', explaining that new cells arise from pre-existing cells, was proposed by:

- (A) Matthias Schleiden
- (B) Theodore Schwann
- ☒ (C) Rudolf Virchow
- (D) Antonie von Leeuwenhoek

2.

Which of the following are considered components of the endomembrane system? (a) Endoplasmic reticulum (b) Golgi apparatus (c) Mitochondria (d) Lysosomes

- (A) (a) and (c) only
- ☒ (B) (a), (b) and (d) only
- (C) (b), (c) and (d) only
- (D) (a), (b), (c) and (d)

3.

The prokaryotic (70S) ribosome is formed by the association of which two subunits?

- (A) 40S and 60S
- ☒ (B) 50S and 30S
- (C) 60S and 30S
- (D) 40S and 50S

4.

Which of the following statements regarding plastids are correct? (a) Chromoplasts contain chlorophyll and carotenoids (b) Amyloplasts store starch (c) Elaioplasts store oils and fats (d) Aleuroplasts store proteins

- (A) (a), (b) and (c) only
- ☒ (B) (b), (c) and (d) only
- (C) (a), (c) and (d) only
- (D) (a), (b), (c) and (d)

5.

Which comma-shaped bacterial form represents one of the four basic shapes of bacteria?

- (A) Bacillus
- (B) Coccus
- ☒ (C) Vibrio
- (D) Spirillum

6.

Which of the following statements regarding mesosomes in prokaryotic cells are correct? (a) Formed by extensions of the plasma membrane (b) Help in DNA replication and its distribution to daughter cells (c) Increase surface area for respiratory enzyme content (d) Contain photosynthetic pigments as in cyanobacteria

- (A) (a) and (b) only
- ☒ (B) (a), (b) and (c) only
- (C) (b), (c) and (d) only
- (D) All of the above

7.

Assertion (A): Mitochondria are often referred to as semi-autonomous organelles.

Reason (R): The mitochondrial matrix possesses a single circular DNA, a few RNA molecules, 70S ribosomes and components required for protein synthesis.

- ☒ (A) Both Assertion (A) and Reason (R) are true, and R is the correct explanation of A
- (B) Both Assertion (A) and Reason (R) are true, but R is NOT the correct explanation of A
- (C) Assertion (A) is true, but Reason (R) is false
- (D) Assertion (A) is false, but Reason (R) is true

8.

Match List-I with List-II:

- | | |
|---------------------------------|---|
| a. Rough endoplasmic reticulum | 1. Lipid and steroid synthesis |
| b. Smooth endoplasmic reticulum | 2. Formation of glycoproteins and glycolipids |
| c. Golgi apparatus | 3. Protein synthesis and secretion |
| d. Lysosome | 4. Intracellular digestion via hydrolytic enzymes |
- ☒ (A) a-3, b-1, c-2, d-4
 - (B) a-1, b-3, c-4, d-2
 - (C) a-2, b-4, c-1, d-3
 - (D) a-4, b-2, c-3, d-1

9.

Statement I: The fluid mosaic model of the plasma membrane was proposed by Singer and Nicolson in 1972.

Statement II: According to this model, proteins are static and incapable of lateral movement within the lipid bilayer.

- (A) Both Statement I and Statement II are true
- ☒ (B) Statement I is true but Statement II is false
- (C) Statement I is false but Statement II is true
- (D) Both Statement I and Statement II are false

10.

The middle lamella found between two adjacent plant cell walls is mainly composed of:

- ☒ (A) Calcium pectate
- (B) Cellulose
- (C) Hemicellulose
- (D) Lignin

11.

Which of the following are parts of a bacterial flagellum? (a) Filament (b) Hook (c) Basal body (d) Capsule

- (A) (a) and (d) only
- ☒ (B) (a), (b) and (c) only
- (C) (b), (c) and (d) only
- (D) (a), (b), (c) and (d)

12.

In the human erythrocyte membrane, protein constitutes approximately what percentage of the membrane composition?

- (A) 25%
- (B) 40%
- ☒ (C) 52%
- (D) 70%

13.

Mycoplasma, considered the smallest known cell capable of independent existence, measures approximately:

- (A) 0.1 μm in length
- ☒ (B) 0.3 μm in length
- (C) 3 to 5 μm in length
- (D) 7.0 μm in length

14.

In a typical bacterial cell envelope, the correct sequence of layers from outermost to innermost is:

- ☒ (A) Glycocalyx $\rightarrow$ Cell wall $\rightarrow$ Plasma membrane
- (B) Cell wall $\rightarrow$ Glycocalyx $\rightarrow$ Plasma membrane
- (C) Plasma membrane $\rightarrow$ Cell wall $\rightarrow$ Glycocalyx
- (D) Cell wall $\rightarrow$ Plasma membrane $\rightarrow$ Glycocalyx

15.

Consider the following statements about vacuoles: (a) The contractile vacuole in Amoeba helps in osmoregulation and excretion. (b) Food vacuoles are formed by engulfing food particles. (c) The tonoplast facilitates transport of substances against a concentration gradient. (d) Vacuoles are bound by a double membrane called the tonoplast. Which of these statements are correct?

- ☒ (A) (a), (b) and (c) only
- (B) (a), (b) and (d) only
- (C) (b), (c) and (d) only
- (D) (a), (b), (c) and (d)

16.

Arrange the following in ascending order of their cell size: (a) Mycoplasma (b) Typical bacterium (c) Human RBC (d) Ostrich egg

- ☒ (A) (a) < (b) < (c) < (d)
- (B) (b) < (a) < (d) < (c)
- (C) (a) < (c) < (b) < (d)
- (D) (d) < (c) < (b) < (a)

17.

The discovery of the nucleus in cells is credited to which scientist?

- ☒ (A) Robert Brown
- (B) Antonie van Leeuwenhoek
- (C) Robert Hooke
- (D) Rudolf Virchow

18.

Consider the following statements regarding leucoplasts: (a) Amyloplasts store carbohydrates (b) Elaioplasts store oils and fats (c) Aleuroplasts store proteins (d) Chromoplasts store starch Which of the above statements are correct?

- ☒ (A) (a), (b) and (c) only
- (B) (a), (b) and (d) only
- (C) (b), (c) and (d) only
- (D) (a), (c) and (d) only

19.

In green plants, the number of chloroplasts per mesophyll cell typically ranges up to how many, compared to just one in Chlamydomonas?

- ☒ (A) 20-40
- (B) 5-10
- (C) 50-60
- (D) 100-200

20.

Assertion (A): Rough endoplasmic reticulum is abundant in cells actively involved in protein synthesis and secretion.

Reason (R): Ribosomes attached to the outer surface of rough endoplasmic reticulum are the sites of protein synthesis.

- ☒ (A) Both Assertion (A) and Reason (R) are true, and R is the correct explanation of A
- (B) Both Assertion (A) and Reason (R) are true, but R is NOT the correct explanation of A
- (C) Assertion (A) is true, but Reason (R) is false
- (D) Assertion (A) is false, but Reason (R) is true

21.

Match List-I with List-II:

- | | |
|-----------------------|----------------------------|
| a. Golgi apparatus | 1. Camillo Golgi |
| b. Mitochondria | 2. Power house of the cell |
| c. Fluid mosaic model | 3. Singer and Nicolson |
| d. Nucleus | 4. Robert Brown |

☒ (A) a-1, b-2, c-3, d-4

(B) a-2, b-1, c-4, d-3

(C) a-4, b-3, c-2, d-1

(D) a-3, b-4, c-1, d-2

22.

The cell wall of algae differs from that of other plants in that it is made up of:

- (A) Cellulose, hemicellulose and pectins
- ☒ (B) Cellulose, galactans and mannans
- (C) Chitin and glucan only
- (D) Peptidoglycan and teichoic acid

23.

Which of the following is a major function of the smooth endoplasmic reticulum?

- ☒ (A) Synthesis of lipids and steroidal hormones
- (B) Synthesis of proteins for secretion
- (C) Packaging of glycoproteins
- (D) Formation of lysosomal enzymes

24.

Statement I: Peripheral proteins of the plasma membrane are partially or totally buried within the lipid bilayer.

Statement II: In the human erythrocyte membrane, lipids constitute approximately 40 per cent of the membrane composition.

- (A) Both Statement I and Statement II are true
- (B) Statement I is true but Statement II is false
- ☒ (C) Statement I is false but Statement II is true
- (D) Both Statement I and Statement II are false

25.

The discovery of the triple helical structure of collagen and the development of a plot depicting allowed conformations of proteins are attributed to:

- ☒ (A) G.N. Ramachandran
- (B) Robert Brown
- (C) Camillo Golgi
- (D) Rudolf Virchow

26.

Which of the following represents the largest isolated single cell known?

- ☒ (A) Egg of ostrich
- (B) Human red blood cell
- (C) Mycoplasma
- (D) Nerve cell

27.

Consider the following statements about pili and fimbriae in bacteria: (a) Pili are elongated tubular structures made of protein (b) Fimbriae are small bristle-like fibres (c) Both structures play a major role in bacterial motility (d) Fimbriae help bacteria attach to host tissues Which of these are correct?

- (A) (a), (b) and (d) only
(B) (a), (b) and (c) only
(C) (b) and (c) only
(D) (a), (c) and (d) only

28.

The energy-dependent movement of ions or molecules across the plasma membrane against their concentration gradient is called:

- (A) Active transport
(B) Simple diffusion
(C) Osmosis
(D) Facilitated diffusion

29.

The densely stained reticular structures located near the nucleus, later named after their discoverer, were first observed in 1898 by:

- (A) Camillo Golgi
(B) Robert Brown
(C) Rudolf Virchow
(D) Robert Hooke

30.

* A typical mitochondrion has an average diameter of about:

- (A) 0.5 μm
(B) 1.5 μm
(C) 2.5 μm
(D) 5.0 μm

31.

Which of the following is NOT considered an inclusion body of prokaryotic cells?

- (A) Phosphate granules
(B) Cyanophycean granules
(C) Glycogen granules
(D) Mesosome

32.

Bacteria are classified as Gram positive or Gram negative on the basis of differences in:

- (A) cell envelope composition and staining response
(B) number and arrangement of flagella
(C) presence or absence of plasmids
(D) shape of the ribosomal subunits

33.

Assertion (A): The Golgi apparatus remains in close structural and functional association with the endoplasmic reticulum.

Reason (R): Vesicles containing materials budded off from the ER fuse with the cis face of the Golgi apparatus.

- (A) Both Assertion (A) and Reason (R) are true, and R is the correct explanation of A
(B) Both Assertion (A) and Reason (R) are true, but R is NOT the correct explanation of A
(C) Assertion (A) is true, but Reason (R) is false
(D) Assertion (A) is false, but Reason (R) is true

34.

Match List-I with List-II:

- | | |
|-----------------------|--|
| a. Matthias Schleiden | 1. Proposed all plants are made of cells forming tissues |
| b. Theodore Schwann | 2. Described plasma membrane in animal cells |
| c. Rudolf Virchow | 3. Proposed cells arise from pre-existing cells |
| d. Camillo Golgi | 4. First observed densely stained bodies near the nucleus (1898) |

- (A) a-1, b-2, c-3, d-4
(B) a-2, b-1, c-4, d-3
(C) a-3, b-4, c-1, d-2
(D) a-4, b-3, c-2, d-1

35.

Plasmid DNA present in some bacteria, in addition to the genomic DNA, is known to confer resistance to:

- (A) Antibiotics
(B) Ultraviolet radiation
(C) Desiccation
(D) Extreme temperature

36.

Consider the following statements regarding the endoplasmic reticulum: (a) RER is continuous with the outer membrane of the nucleus. (b) SER is the major site for the synthesis of lipids. (c) RER lacks ribosomes on its surface. (d) In animal cells, steroidal hormones are synthesised in SER. Which of the above statements are correct?

- (A) (a), (b) and (d) only
(B) (a), (b) and (c) only
(C) (b), (c) and (d) only
(D) (a), (c) and (d) only

37.

Antonie von Leeuwenhoek is credited with which of the following contributions to cell biology?

- (A) First saw and described a live cell
(B) Discovered the nucleus in cells
(C) Proposed the fluid mosaic model
(D) Formulated the final cell theory

38.

Consider the following statements regarding functions of the plant cell wall: (a) Gives shape to the cell (b) Protects the cell from mechanical damage and infection (c) Helps in cell-to-cell interaction (d) Serves as the primary site of ATP synthesis Which of the above are correct?

- (A) (a) and (d) only
(B) (a), (b) and (c) only
(C) (b), (c) and (d) only
(D) (a), (b), (c) and (d)

39.

Statement I: The quasi-fluid nature of membrane lipids permits lateral movement of proteins within the bilayer.

Statement II: Osmosis refers to the movement of solute molecules across a membrane against their concentration gradient.

- (A) Both Statement I and Statement II are true
(B) Statement I is true but Statement II is false
(C) Statement I is false but Statement II is true
(D) Both Statement I and Statement II are false

40.

Prokaryotic ribosomes are approximately what size?

- (A) 15 nm x 20 nm
- (B) 5 nm x 10 nm
- (C) 25 nm x 30 nm
- (D) 50 nm x 70 nm

41.

Which of the following organelles is present in animal cells but absent in almost all plant cells, and plays a role in cell division?

- (A) Centrosome
- (B) Golgi apparatus
- (C) Peroxisome
- (D) Plastid

42.

The passive movement of water across a selectively permeable membrane from a region of higher concentration to a region of lower concentration is called:

- (A) Active transport
- (B) Osmosis
- (C) Exocytosis
- (D) Facilitated diffusion using ATP

43.

Consider the following statements about mitochondria: (a) Cristae increase the surface area of the inner membrane. (b) The matrix contains circular DNA, RNA and 70S ribosomes. (c) Mitochondria multiply by fission. (d) The outer membrane is folded into cristae. Which of the above statements are correct?

- (A) (a), (b) and (c) only
- (B) (a), (b), (c) and (d)
- (C) (b), (c) and (d) only
- (D) (a) and (d) only

44.

In cyanobacteria, the membranous extensions into the cytoplasm that contain pigments are called:

- (A) Mesosomes
- (B) Chromatophores
- (C) Pili
- (D) Plasmids

45.

Which of the following organelles is NOT considered a part of the endomembrane system?

- (A) Endoplasmic reticulum
- (B) Golgi apparatus
- (C) Mitochondria
- (D) Lysosome

46.

Assertion (A): Ribosomes are present in both prokaryotic and eukaryotic cells.

Reason (R): Ribosomes are membrane-bound organelles found only within the cytoplasm.

- (A) Both Assertion (A) and Reason (R) are true, and R is the correct explanation of A
- (B) Both Assertion (A) and Reason (R) are true, but R is NOT the correct explanation of A
- (C) Assertion (A) is true, but Reason (R) is false
- (D) Assertion (A) is false, but Reason (R) is true

47.

Match List-I with List-II:

- | | |
|----------------|---|
| a. Chloroplast | 1. Stores carbohydrates |
| b. Chromoplast | 2. Stores oils and fats |
| c. Amyloplast | 3. Contains chlorophyll and carotenoids |
| d. Elaioplast | 4. Contains carotene and xanthophylls |

(A) a-3, b-4, c-1, d-2

(B) a-1, b-2, c-3, d-4

(C) a-4, b-3, c-2, d-1

(D) a-2, b-1, c-4, d-3

48.

The 70S ribosome of prokaryotes is formed by the association of which two subunits?

- (A) 50S and 30S
- (B) 60S and 40S
- (C) 50S and 40S
- (D) 60S and 30S

49.

Who among the following modified the cell theory to its final form by proposing that new cells arise only from pre-existing cells?

- (A) Matthias Schleiden
- (B) Theodore Schwann
- (C) Rudolf Virchow
- (D) Robert Brown

50.

Consider the following functions attributed to mesosomes in bacteria: (a) Cell wall formation (b) DNA replication and distribution to daughter cells (c) Respiration and secretion (d) Photosynthetic pigment localisation Which of the above are correct?

- (A) (a) and (b) only
- (B) (a), (b) and (c) only
- (C) (b), (c) and (d) only
- (D) (a), (b), (c) and (d)

51.

The four basic shapes of bacteria include all of the following EXCEPT:

- (A) Bacillus
- (B) Coccus
- (C) Vibrio
- (D) Mycelium

52.

Human red blood cells are approximately what diameter?

- (A) 0.3 micrometre
- (B) 3-5 micrometre
- (C) 7.0 micrometre
- (D) 10-20 micrometre

53.

The cell wall of plants (other than algae) is composed mainly of:

- (A) Cellulose, hemicellulose, pectins and proteins
- (B) Cellulose, galactans, mannans and calcium carbonate
- (C) Peptidoglycan and lipopolysaccharide
- (D) Chitin and glucan

54.

Statement I: The capsule is a thick and tough form of glycocalyx found in some bacteria.

Statement II: Glycocalyx is found exclusively in Gram-negative bacteria.

- (A) Both Statement I and Statement II are true
 (B) Statement I is true but Statement II is false
 (C) Statement I is false but Statement II is true
 (D) Both Statement I and Statement II are false

55.

A bacterial flagellum is composed of three parts. Which of the following is NOT one of them?

- (A) Filament
 (B) Hook
 (C) Basal body
 (D) Cilium

56.

The mitochondrial matrix contains all of the following EXCEPT:

- (A) A single circular DNA molecule
 (B) 70S ribosomes
 (C) A few RNA molecules
 (D) 80S ribosomes

57.

The middle lamella, which cements together the walls of two adjacent plant cells, is composed mainly of:

- (A) Calcium pectate
 (B) Cellulose
 (C) Hemicellulose
 (D) Lignin

58.

Consider the following statements regarding vacuoles: (a) Tonoplast facilitates transport of ions against the concentration gradient into the vacuole. (b) The contractile vacuole in Amoeba functions in osmoregulation and excretion. (c) Food vacuoles are formed by engulfing food particles. (d) Vacuoles can occupy up to 50 per cent of the volume of a plant cell. Which of the statements given above are correct?

- (A) (a), (b) and (c) only
 (B) (a), (b), (c) and (d)
 (C) (b), (c) and (d) only
 (D) (a) and (d) only

59.

Assertion (A): Mycoplasma lack a cell wall surrounding their plasma membrane.

Reason (R): Mycoplasma are the smallest known cells, measuring only about 0.3 micrometre in length.

- (A) Both Assertion (A) and Reason (R) are true, and R is the correct explanation of A
 (B) Both Assertion (A) and Reason (R) are true, but R is NOT the correct explanation of A
 (C) Assertion (A) is true, but Reason (R) is false
 (D) Assertion (A) is false, but Reason (R) is true

60.

Match List-I with List-II:

- | | |
|----------------|-----------------------------------|
| a. Chromoplast | 1. Stores oils and fats |
| b. Amyloplast | 2. Stores proteins |
| c. Elaioplast | 3. Contains carotenoid pigments |
| d. Aleuroplast | 4. Stores carbohydrates as starch |

- (A) a-3, b-4, c-1, d-2
 (B) a-1, b-2, c-3, d-4
 (C) a-4, b-3, c-2, d-1
 (D) a-2, b-1, c-4, d-3

61.

Who among the following is credited with the discovery of the nucleus in a living cell?

- (A) Robert Brown
 (B) Antonie von Leeuwenhoek
 (C) Matthias Schleiden
 (D) Rudolf Virchow

62.

Arrange the following in ascending order of size:

Mycoplasma, typical bacterium, human RBC, ostrich egg.

- (A) Mycoplasma < typical bacterium < human RBC < ostrich egg
 (B) Typical bacterium < Mycoplasma < ostrich egg < human RBC
 (C) Human RBC < Mycoplasma < typical bacterium < ostrich egg
 (D) Ostrich egg < human RBC < typical bacterium < Mycoplasma

63.

Consider the following statements regarding the modern cell theory: (a) All living organisms are composed of cells and products of cells. (b) All cells arise from pre-existing cells. (c) Cell is the basic unit of heredity in all organisms. (d) Only eukaryotic organisms are composed of cells. Which of the above are part of the modern cell theory as finally shaped?

- (A) (a) and (b) only
 (B) (a), (c) and (d) only
 (C) (b) and (d) only
 (D) (a), (b) and (c) only

64.

In the plasma membrane of human erythrocytes, protein constitutes approximately what percentage by mass?

- (A) 25 per cent
 (B) 40 per cent
 (C) 52 per cent
 (D) 70 per cent

65.

The fluid mosaic model of the plasma membrane, which describes lateral movement of proteins within the lipid bilayer, was proposed by:

- (A) Schleiden and Schwann
 (B) Singer and Nicolson
 (C) Watson and Crick
 (D) Camillo Golgi

66.

Synthesis of lipids and, in animal cells, steroidal hormones mainly occurs in which organelle?

- (A) Rough endoplasmic reticulum
 (B) Smooth endoplasmic reticulum
 (C) Golgi apparatus

67.

Lysosomal hydrolytic enzymes capable of digesting carbohydrates, proteins, lipids and nucleic acids show optimum activity at:

- (A) Alkaline pH
- (B) Neutral pH
- ☒ (C) Acidic pH
- (D) Highly basic pH

68.

A typical chloroplast found in the mesophyll cells of leaves has a length and width of approximately:

- (A) 1-2 μm length, 0.5-1 μm width
- ☒ (B) 5-10 μm length, 2-4 μm width
- (C) 10-20 μm length, 5-8 μm width
- (D) 0.2-1.0 μm length, 1.0-4.1 μm width

69.

Statement I: Fimbriae are small bristle-like fibres that help bacteria attach to rocks in streams and to host tissues.

Statement II: Pili are small bristle-like fibres that are the primary organs of bacterial motility.

- (A) Both Statement I and Statement II are true
- ☒ (B) Statement I is true but Statement II is false
- (C) Statement I is false but Statement II is true
- (D) Both Statement I and Statement II are false

70.

The discovery of the triple helical structure of collagen, published in Nature in 1954, is credited to which Indian scientist?

- ☒ (A) G.N. Ramachandran
- (B) Har Gobind Khorana
- (C) C.V. Raman
- (D) Birbal Sahni

71.

Consider the following statements regarding vacuoles: (a) In Amoeba, the contractile vacuole is important for osmoregulation and excretion. (b) Food vacuoles are formed in protists by engulfing food particles. (c) Tonoplast facilitates transport of ions against the concentration gradient into the vacuole. (d) Vacuoles can occupy up to 50 per cent of the volume of a plant cell. How many of the above statements are correct?

- (A) One
- (B) Two
- ☒ (C) Three
- (D) Four

72.

Assertion (A): Mycoplasma can survive without a rigid cell wall.

Reason (R): In mycoplasma, the plasma membrane forms the outermost boundary of the cell.

- ☒ (A) Both Assertion (A) and Reason (R) are true, and R is the correct explanation of A
- (B) Both Assertion (A) and Reason (R) are true, but R is NOT the correct explanation of A
- (C) Assertion (A) is true, but Reason (R) is false
- (D) Assertion (A) is false, but Reason (R) is true

73.

Match List-I with List-II:

- | | |
|-------------------|--|
| a. Mesosome | 1. Reserve material storage, not membrane bound |
| b. Pili | 2. Helps in cell wall formation and DNA distribution |
| c. Chromatophore | 3. Elongated tubular structure made of special protein |
| d. Inclusion body | 4. Membranous extension containing pigments |

- ☒ (A) a-2, b-3, c-4, d-1
- (B) a-1, b-2, c-3, d-4
- (C) a-3, b-4, c-1, d-2
- (D) a-4, b-1, c-2, d-3

74.

Bacteria are classified into Gram positive and Gram negative groups mainly on the basis of:

- ☒ (A) Differences in cell envelope and response to staining procedure
- (B) Presence or absence of flagella
- (C) Number of plasmids present
- (D) Shape of the bacterial cell

75.

Which scientist, based on studies of animal cells, first described the thin outer layer now known as the plasma membrane?

- (A) Matthias Schleiden
- ☒ (B) Theodore Schwann
- (C) Rudolf Virchow
- (D) Robert Brown

76.

The Ramachandran plot, developed by G.N. Ramachandran, is used to analyse:

- ☒ (A) Allowed conformations of proteins
- (B) Replication of plasmid DNA
- (C) Fluidity of the plasma membrane
- (D) Packaging of proteins in the Golgi apparatus

77.

Matthias Schleiden (1838), a German botanist, is credited with which of the following observations?

- ☒ (A) All plants are composed of different kinds of cells which form the tissues of the plant
- (B) Animal cells have a thin outer layer called the plasma membrane
- (C) Cells arise only from pre-existing cells
- (D) Presence of cell wall is unique to animal cells

78.

The convex face of the Golgi apparatus at which vesicles from the endoplasmic reticulum fuse is known as the:

- (A) Trans or maturing face
- ☒ (B) Cis or forming face
- (C) Luminal face
- (D) Matrix face

79.

Plasmid DNA present in some bacteria, in addition to the genomic DNA, is known to confer which unique phenotypic character?

- ☒ (A) Resistance to antibiotics
- (B) Formation of mesosomes
- (C) Gram-positive staining property
- (D) Increased flagellar number

80.

Consider the following statements regarding inclusion bodies in prokaryotic cells: (a) They are not bound by any membrane system (b) They lie free in the cytoplasm (c) Phosphate granules, cyanophycean granules and glycogen granules are examples (d) They are found only in eukaryotic cells Which of the above statements are correct?

- (A) (a), (b) and (c) only
(B) (a), (b), (c) and (d)
(C) (a) and (d) only
(D) (b), (c) and (d) only

81.

Who is credited with observing and describing a live cell for the first time under a microscope?

- (A) Antonie von Leeuwenhoek
(B) Robert Brown
(C) Robert Hooke
(D) Rudolf Virchow

82.

Consider the following statements regarding membrane proteins: (a) Peripheral proteins lie on the surface of the membrane (b) Integral proteins are partially or totally buried in the membrane (c) Classification into integral and peripheral is based on the ease of extraction (d) Integral proteins cannot associate with the lipid bilayer at all Which of the above statements are correct?

- (A) (a), (b) and (c) only
(B) (a) and (d) only
(C) (b), (c) and (d) only
(D) (a), (b), (c) and (d)

83.

The flat, disc-shaped cisternae of the Golgi apparatus typically have a diameter of:

- (A) 0.5 to 1.0 micrometre
(B) 1.0 to 4.1 micrometres
(C) 0.2 to 1.0 micrometre
(D) 5 to 10 micrometres

84.

Statement I: Camillo Golgi first observed densely stained reticular structures near the nucleus in 1898.

Statement II: The trans face of the Golgi apparatus is also referred to as the forming face.

- (A) Both Statement I and Statement II are true
(B) Statement I is true but Statement II is false
(C) Statement I is false but Statement II is true
(D) Both Statement I and Statement II are false

85.

Assertion (A): Rough endoplasmic reticulum is frequently observed in cells actively involved in protein synthesis and secretion.

Reason (R): Rough endoplasmic reticulum bears ribosomes on its outer surface which carry out protein synthesis.

- (A) Both Assertion (A) and Reason (R) are true, and R is the correct explanation of A
(B) Both Assertion (A) and Reason (R) are true, but R is NOT the correct explanation of A
(C) Assertion (A) is true, but Reason (R) is false
(D) Assertion (A) is false, but Reason (R) is true

86.

Match List-I with List-II:

- a. Golgi apparatus
b. Lysosome
c. Mitochondrion
d. Smooth endoplasmic reticulum

1. Formation of glycoproteins and glycolipids
2. Intracellular digestion
3. Site of aerobic respiration (ATP synthesis)
4. Synthesis of lipids

(A) a-1, b-2, c-3, d-4

(B) a-2, b-1, c-4, d-3

(C) a-3, b-4, c-1, d-2

(D) a-4, b-3, c-2, d-1

87.

The largest isolated single cell known is the egg of which of the following organisms?

- (A) Ostrich
(B) Whale
(C) Elephant
(D) Crocodile

88.

Consider the following statements regarding differences between plant and animal cells: (a) Cell wall is present in plant cells only. (b) Centrioles are present in animal cells only. (c) Plastids are present in plant cells only. (d) A large central vacuole is present in animal cells only. Which of the above statements are correct?

- (A) (a), (b) and (c) only
(B) All four statements
(C) (a) and (b) only
(D) (b), (c) and (d) only

89.

Prokaryotic ribosomes are formed by the association of 50S and 30S subunits. The resulting complete ribosome has a sedimentation coefficient of:

- (A) 70S
(B) 80S
(C) 60S
(D) 40S

90.

Consider the following cell organelles: (a) Endoplasmic reticulum (b) Golgi apparatus (c) Mitochondria (d) Lysosomes. Which of these are considered part of the endomembrane system?

- (A) (a), (b) and (d) only
(B) All four organelles
(C) (a) and (c) only
(D) (b) and (c) only