

NEET MCQ QUESTIONS

Cell: The unit of life

1. Select the mismatch: [NEET PHASE-2 2016]
 - (1) Gas vacuoles – Green Bacteria
 - (2) Large central vacuoles – Animal cells
 - (3) Protists – Eukaryotes
 - (4) Methanogens – Prokaryotes

2. A cell organelle containing hydrolytic enzymes is [NEET PHASE-2 2016]
 - (1) Lysosome
 - (2) Microsome
 - (3) Ribosome
 - (4) Mesosome

3. Water soluble pigments found in plant cell vacuoles are [NEET2016]
 - (1) Anthocyanin
 - (2) Xanthophyll
 - (3) Chlorophyll
 - (4) Carotenoids

4. Mitochondria and chloroplast are [NEET2016]
 - (a) Semi-autonomous organelles
 - (b) Formed by division of the pre-existing organelles and they contain DNA but lack protein synthesizing machinery

Which one of the following options is correct?

- (1) Both (a) and (b) are correct
 - (2) Both (a) and (b) are false
 - (3) (b) is true but (a) is false
 - (4) (a) is true but (b) is false
-
5. Which of the following structures are not found in prokaryotic cells [RE-AIPMT2015]
 - (1) Plasma membrane
 - (2) Nuclear envelope
 - (3) Ribosome
 - (4) Mesosome

 6. Which of the following are not membrane bound organelles [RE-AIPMT2015]
 - (1) Mesosome
 - (2) Vacuoles
 - (3) Ribosome
 - (4) Lysosome

 7. Cellular organelles with membranes are [RE-AIPMT2015]
 - (1) Lysosome, Golgi apparatus and mitochondria

- (2) Nuclei, ribosomes and mitochondria
- (3) Chromosomes, ribosomes and ER
- (4) ER, ribosomes and Nuclei

8. Match the columns and identify the correct option [RE-AIPMT2015]

Column I	Column II
(a) Thylakoids	(i) Disc shaped sacs of Golgi apparatus
(b) Cristae	(ii) Condensed structure of DNA
(c) Cisternae	(iii) Flat membranous sacs in stroma
(d) Chromatin	(iv) Infoldings in mitochondria

- (1) a(iii), b(iv), c(ii), d(i)
- (2) a(iv), b(iii), c(i), d(ii)
- (3) a(iii), b(iv), c(i), d(ii)
- (4) a(iii), b(1), c(iv), d(ii)

9. Balbiani rings are sites of [RE-AIPMT2015]

- (1) RNA and Protein synthesis
- (2) Lipid synthesis
- (3) Nucleotides synthesis
- (4) Polysaccharide synthesis

10. In photosynthesis, the light independent reactions take place at [RE-AIPMT2015]

- (1) Stomatal matrix
- (2) Thylakoid lumen
- (3) Photosystem I
- (4) Photosystem II

11. Nuclear envelop is a derivative of [AIPMT-2015]

- (1) RER
- (2) SER
- (3) Membrane of Golgi complex
- (4) Microtubules

12. Which one of the following is not an inclusion body found in prokaryotes? [AIPMT-2015]

- (1) Polysome
- (2) Phosphate granule
- (3) Cyanophycean granule
- (4) Glycogen granule

13. The chromosome in which centromere is located close to one end are [AIPMT-2015]

- (1) Sub-metacentric
- (2) Metacentric
- (3) Acrocentric
- (4) Telocentric

14. A somatic cell that has just completed the S-phase of its cell cycle, as compared to gamete of the same species, has [AIPMT-2015]

- (1) Four times the number of chromosomes and twice the amount of DNA
- (2) Twice the number of chromosomes and twice the amount of DNA
- (3) Same number of chromosomes and twice the amount of DNA
- (4) Twice the number of chromosomes and 4 times the amount of DNA

15. Which structure performs the function of mitochondria in bacteria [AIPMT-2014]

- (1) Nucleoid
- (2) Ribosomes
- (3) Cell wall
- (4) Mesosome

16. Match the following and select the correct answer [AIPMT-2014]

Column I	Column II
a. Centriole	(i) Infoldings in mitochondria
b. Chlorophyll	(ii) Thylakoids
c. Cristae	(ii) Nucleic acids
d. Ribozymes	(iii) Basal Bodies, cilia or flagella

- (1) a(iv), b(ii), c(i), d(iii)
- (2) a(i), b(ii), c(iv), d(iii)
- (3) a(i), b(iii), c(ii), d(iv)
- (4) a(iv), b(iii), c(i), d(ii)

17. Golgi complex plays a major role [AIPMT-2013]

- (1) In digesting proteins and carbohydrates
- (2) As energy transferring organelle
- (3) In post translational modification of proteins and glycosidation of lipids
- (4) In trapping the light and transforming it into chemical energy

18. Which one of the following does not differ in E. coli and chlamydomonas [AIPMT(prelims)-2012]

- (1) Cell wall
- (2) Cell membrane
- (3) Ribosomes
- (4) Chromosomal organization

19. Select the correct statement from the following regarding cell membrane [AIPMT(prelims)-2012]

- (1) Lipids are arranged in a bilayer with polar heads towards the inner part
- (2) Fluid mosaic model of cell membrane was proposed by Singer and Nicolson
- (3) Na^+ and K^+ move across the cell membrane by passive transport
- (4) Proteins make up 60-70% of the cell membrane

20. What is true about ribosomes [AIPMT(prelims)-2012]

- (1) These are found only in eukaryotic cells
- (2) These are self-splicing introns of some RNAs

- (3) The prokaryotic ribosomes are 80S, where "S" stands for sedimentation coefficient
- (4) These are composed of ribonucleic acid and proteins

21. Ribosomal RNA is actively synthesized in [AIPMT(prelims)-2012]

- (1) Nucleoplasm
- (2) Ribosomes
- (3) Lysosomes
- (4) Nucleolus

22. Important site for the formation of glycoproteins and glycolipids is [AIPMT(prelims)-2011]

- (1) Ribosomes
- (2) Vacuoles
- (3) Golgi apparatus
- (4) Plastids

23. Peptide synthesis inside a cell takes place in [AIPMT(prelims)-2011]

- (1) Ribosomes
- (2) Chloroplasts
- (3) Mitochondria
- (4) Chromoplast

24. In eubacteria, a cellular component that resembles eukaryotic cell is [AIPMT(prelims)-2011]

- (1) Cell wall
- (2) Plasma membrane
- (3) Nucleus
- (4) Ribosomes

25. In mitochondria protons accumulate in the [AIPMT(mains)-2011]

- (1) Inter membrane space
- (2) Matrix
- (3) Outer membrane
- (4) Inner membrane

26. Which one of the following is not considered as part of endomembrane system [AIPMT(mains)-2011]

- (1) Vacuole
- (2) Lysosome
- (3) Golgi complex
- (4) Peroxisome

27. The main arena of various types activities of a cell is [AIPMT(prelims)-2010]

- (1) Nucleus
- (2) Plasma membrane
- (3) Mitochondria
- (4) Cytoplasm

28. The plasma membrane consists of mainly [AIPMT(prelims)-2010]
- (1) Proteins embedded in the carbohydrate bilayer
 - (2) Phospholipids embedded in protein bilayer
 - (3) Proteins embedded in phospholipid layer
 - (4) Proteins embedded in a polymer of glucose molecules
29. Which one of the following statements about the particular entity is true? [AIPMT(prelims)-2010]
- (1) Centromere is found in animal cells, which produces ester during cell divisions
 - (2) The gene for producing insulin is present in every body cell
 - (3) Nucleosome is formed of nucleotides
 - (4) DNA consists of a core of 8 Histones
30. Plasmodesmata are [AIPMT(prelims)-2009]
- (1) Locomotory structures
 - (2) Membranes connecting the nucleus with plasma lemma
 - (3) Connections between adjacent cells
 - (4) Lignified cemented layers between the cells
31. Polysome is formed by [AIPMT(prelims)-2008]
- (1) Ribosomes attached to each other in a linear arrangement
 - (2) Several ribosomes attached to a single mRNA strand
 - (3) Many ribosomes attached to a strand of ER
 - (4) A ribosome with several subunits
32. Keeping in view the 'fluid mosaic model' for the structure of cell membrane, which one of the following statements is correct w.r.t. the movement of lipids and proteins from one lipid monolayer to the other (described as flip-flop movement)? [AIPMT(prelims)-2008]
- (1) Neither lipids nor proteins can flip-flop
 - (2) Both lipids and proteins can flip flop
 - (3) While lipids can rarely flip flop, proteins cannot
 - (4) While proteins can rarely flip flop, lipids cannot
33. Which one of the following is not a constituent of cell membrane [AIPMT(prelims)-2007]
- (1) Phospholipids
 - (2) Cholesterol
 - (3) Glycolipids
 - (4) Proline
34. Select the wrong statement from the following [AIPMT(prelims)-2007]
- (1) The chloroplasts are generally much larger than mitochondria
 - (2) Both chloroplast and mitochondria contain an inner and outer membrane
 - (3) Both chloroplast and mitochondria have an internal compartment, the thylakoid space bounded by the thylakoid membrane
 - (4) Both chloroplast and mitochondria contain DNA

35. Which one of the following statements regarding mitochondrial membrane is not correct?
[AIPMT(prelims)-2006]
- (1) The outer membrane is permeable to all kinds of molecules
 - (2) The enzymes of the electron transfer chain are embedded in the outer membrane
 - (3) The inner membrane is highly convoluted forming a series of inflodings
 - (4) The outer membrane resembles a sieve
36. A major breakthrough in the studies of cells came with the development of electron microscope. This is because [AIPMT(prelims)-2006]
- (1) The resolution power of the electron microscope is much higher than that of light microscope
 - (2) The resolving power of the electron microscope is 200-350nm as compared to 0.1-0.2 nm for the light microscope
 - (3) Electron beam can pass through thick materials whereas light microscopy requires thin sections
 - (4) The electron microscope is more powerful than the light microscope as it uses a beam of electrons which has wavelength much longer than that of photons
37. The term "Glycocalyx" is used for [prior to medical Entrance Exams - 2005]
- (1) A layer surrounding the cell wall of bacteria
 - (2) A layer present between cell wall and membrane of bacteria
 - (3) Cell wall of bacteria
 - (4) Bacterial cell genetically engineered to possess N-glycosylated proteins
38. Why is a capsule advantageous to a bacteria? [prior to medical Entrance Exams - 2005]
- (1) It allows the bacterium to attach to the surface
 - (2) To protect bacterium from desiccation
 - (3) It provides means of locomotion
 - (4) It allows bacterium to hide from host's immune system
39. Which one of the following organisms is not an example of eukaryotic cells
[Prior to medical Entrance Exams - 2005]
- (1) Amoeba proteus
 - (2) Paramecium caudatum
 - (3) Escherichia coli
 - (4) Euglena viridis
40. The main organelle involved in modification and routing of newly synthesized proteins to the destination is [AIPMT(prelims)-2005]
- (1) Mitochondria
 - (2) ER
 - (3) Lysosome
 - (4) Chloroplast
41. A student wishes to study the cell structure under a light microscope having 10X eyepiece and 45X objective. He should illuminate the object by which one of the following colours of light so as to get the best possible resolution [AIPMT(prelims)-2005]
- (1) Yellow

- (2) Green
- (3) Blue
- (4) Red

42. Chlorophyll in chloroplasts is located in [AIPMT(prelims)-2005]

- (1) Grana
- (2) Pyrenoid
- (3) Stroma
- (4) Both (1) and (2)

43. Protein synthesis in animal cell occurs [AIPMT(prelims)-2005]

- (1) Only on the ribosomes present in cytosol
- (2) Only ribosomes present in cytoplasm as well as in mitochondria
- (3) Only on ribosomes attached to the nuclear envelope and ER
- (4) On ribosomes present in the nucleolus as well as in cytoplasm

44. 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 aspects. In this regard, which one of the following statements is incorrect? [AIPMT(prelims)-2005]

- (1) Proteins in cell membranes can travel within the lipid bilayer
- (2) Proteins can remain confined within certain domains of the membrane
- (3) Proteins can also undergo "Flip-flop movements" in lipid bilayer
- (4) Many proteins remain completely embedded within the lipid bilayer

45. Which of the following statements regarding cilia is not correct [AIPMT(prelims)-2006]

- (1) The organized beating of cilia is controlled by fluxes of Ca^+ across the membrane
- (2) Cilia are hair-like cellular appendages
- (3) Microtubules of cilia are composed of tubule
- (4) Cilia contain an outer ring of nine doublet microtubules surrounding two single microtubules

46. In germinating seeds fatty acids are degraded exclusively in [AIPMT(prelims)-2008]

- (1) Mitochondria
- (2) Proplastids
- (3) Glyoxysomes
- (4) Peroxisomes

47. The two sub-units of ribosomes remain united at a critical ion level [AIPMT(prelims)-2008]

- (1) Calcium
- (2) Copper
- (3) Manganese
- (4) Magnesium

48. Which one of the following structures is an organelle with an organelle [AIPMT(mains)-2012]

- (1) Ribosome
- (2) Peroxisome

- (3) ER
- (4) Mesosome

49. Which one of the following of the cellular parts is correctly described [AIPMT(mains)-2012]

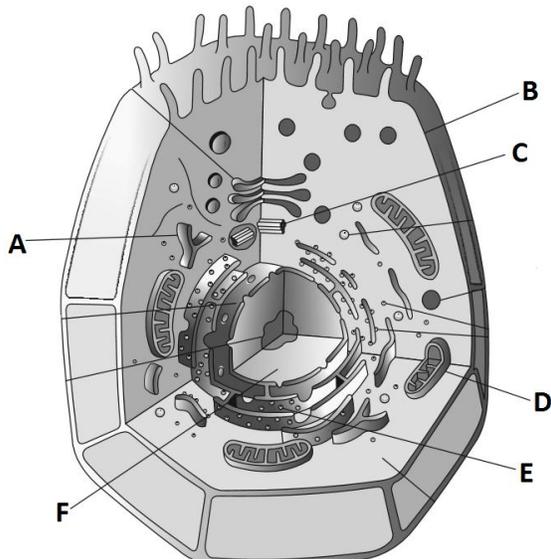
- (1) Thylakoids – Flattened membranous sacs forming the Grana of Chloroplasts
- (2) Centrioles – Sites of active RNA synthesis
- (3) Ribosomes – those on chloroplasts are larger (80S) while those in cytoplasm are smaller (70S)
- (4) Lysosomes – optimally active at a pH of about 8.5

50. Lamp brush chromosomes are seen in which typical stage? [prior to medical Entrance Exams - 2005]

- (1) Mitotic metaphase
- (2) Meiotic prophase
- (3) Mitotic anaphase
- (4) Mitotic prophase

Diagram Based Questions

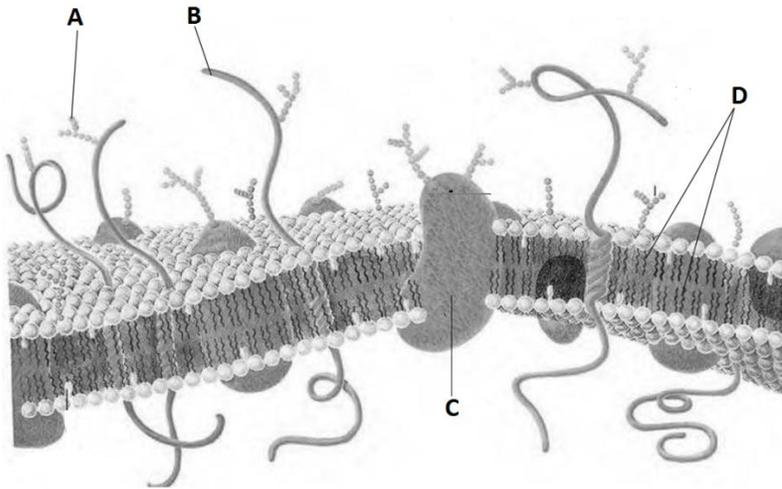
51. Identify the correct statement with regard to the given cell



- A. Concerned with lipid and steroidal hormone synthesis.
- B. Outer non-living rigid structure which gives shape to the cell and protects from mechanical damage and infection.
- C. Both lie perpendicular to each other and each has an organization like the cart wheel.
- D. Responsible for trapping light energy for the synthesis of sugar.
- E. Present in cells actively involved in protein synthesis and secretion.
- F. Spherical structures, rich in hydrolytic enzymes.

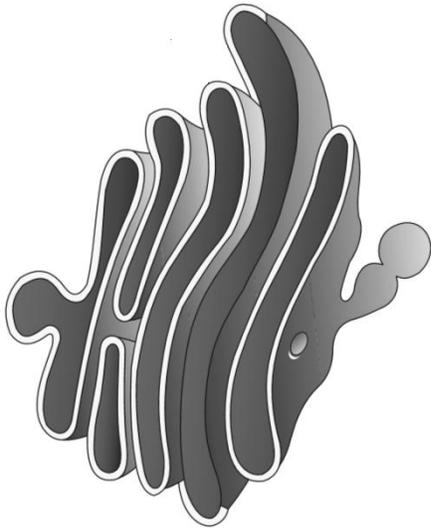
- (1) A, D & E
- (2) B, C & D
- (3) A, C & E
- (4) A, B, C & F

52. Identify the structures marked as A, B, C and D w.r.t. fluid mosaic model of plasma membrane



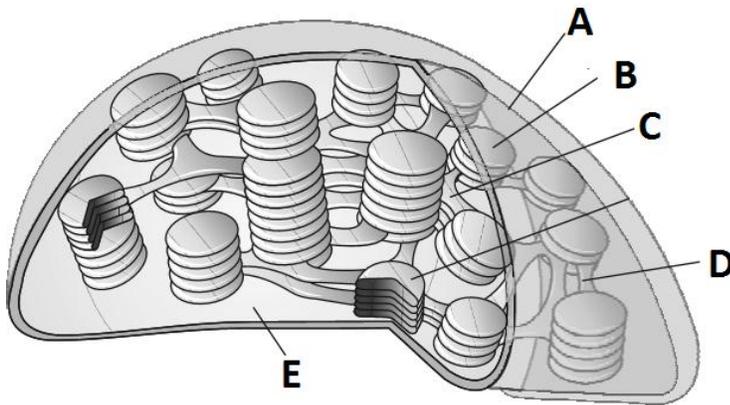
	A	B	C	D
(1)	Proteins	Sugar	Integral protein	Lipid monolayer
(2)	Sugar	Protein	Peripheral Protein	Lipid bilayer
(3)	Protein	Sugar	Peripheral Protein	Lipid bilayer
(4)	Sugar	Protein	Integral Protein	Lipid bilayer

53. Study the Organelle given below and identify its function.



- (1) It is a site for formation of glycoproteins and glycolips
- (2) Site for synthesis of steroidal hormone
- (3) These have enzymes that are capable of digesting carbohydrates, proteins, lipids and nucleic acids
- (4) It divides intracellular space into two distinct compartments i.e., luminal and extra luminal cytoplasm

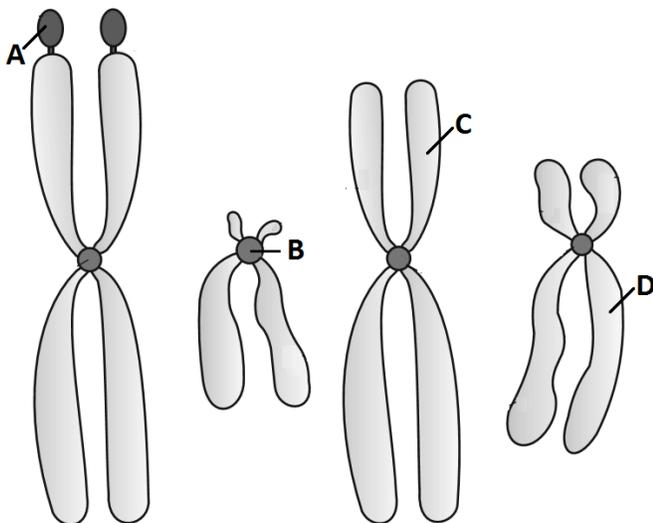
54. Consider the following five statements (A to E) w.r.t. chloroplast shown below. Select the correct option stating which ones are **True** (T) and which ones are **False** (F).



- A. It is impermeable and lacks porins.
- B. It is selectively permeable, having carrier proteins for transport.
- C. Stacked thylakoids one over other which is the site of production of assimilatory power.
- D. Present between two grana and contains enzymes of dark reactions.
- E. It contains enzymes for the synthesis of sugar and proteins.

	A	B	C	D	E
(1)	F	T	T	T	T
(2)	F	T	T	F	T
(3)	T	F	T	T	T
(4)	T	F	F	T	T

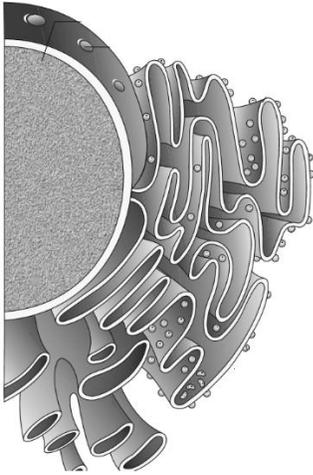
55. Find out the correct option on the basis of the following diagrams



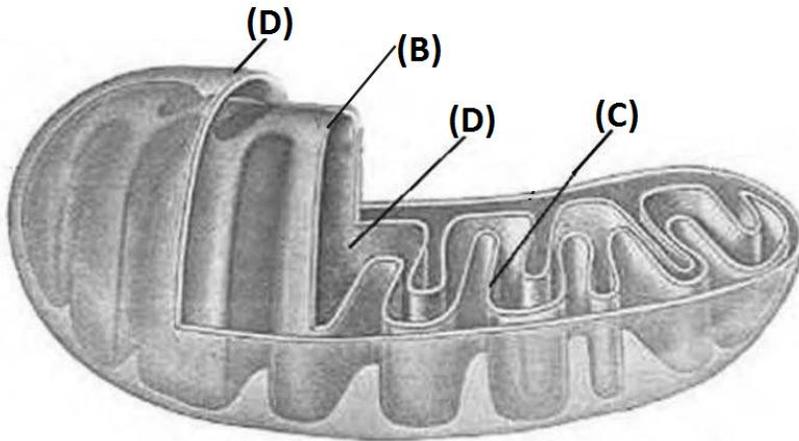
- (1) A – Satellite, B – Secondary constriction
C – Short arm, D – long arm
- (2) A – Satellite, B – Centromere
C – Short arm, D – Long arm

- (3) A – Secondary constriction, B – Satellite
C – Short arm, D – Long arm

56. Which one of the following organelle in the figure correctly matches with its functions?

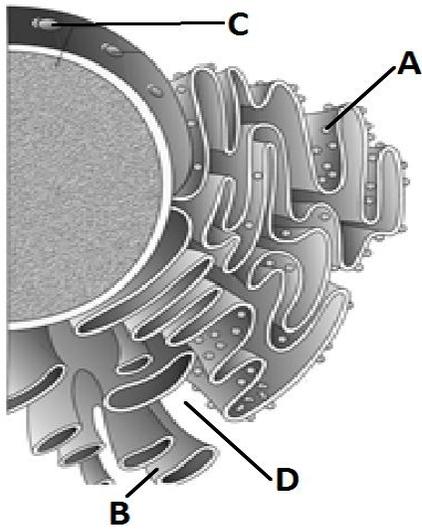


- (1) Golgi apparatus, protein synthesis
 - (2) Golgi apparatus, formation of glycolipids
 - (3) Rough endoplasmic reticulum, protein synthesis
 - (4) Rough endoplasmic reticulum, formation of glycoproteins
57. The figure below shows the structure of a mitochondrion with its four parts labelled (A), (B), (C) and (D). Select the part correctly matched with its function



- (1) Part (C): Cristae – possess single circular DNA molecule and ribosomes
- (2) Part (A): Matrix – major site for respiratory chain enzymes
- (3) Part (D): Outer membrane – gives rise to inner membrane by splitting
- (4) Part (B): Inner membrane – forms infoldings called cristae

58. Identify the components labelled A, B, C and D in the diagram below from the list (i) to (vii) given along with



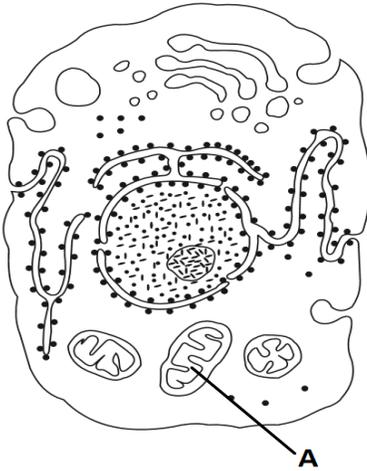
Components:

- (i) Cristae of mitochondria
- (ii) Inner membrane of mitochondria
- (iii) Cytoplasm
- (iv) Smooth endoplasmic reticulum
- (v) Rough endoplasmic reticulum
- (vi) Mitochondrial matrix
- (vii) Cell vacuole
- (viii) Nucleus

The **correct** components are

	A	B	C	D
(1)	(v)	(iv)	(viii)	(iii)
(2)	(i)	(iv)	(viii)	(vi)
(3)	(vi)	(v)	(iv)	(vii)
(4)	(v)	(i)	(iii)	(ii)

59. Select the alternative giving correct identification and function of the organelle 'A' in the diagram



- (1) Endoplasmic reticulum – synthesis of lipids
- (2) Mitochondria – produce cellular energy in the form of ATP
- (3) Golgi body – provides packaging material
- (4) Lysosomes – secrete hydrolytic enzymes

ANSWER KEY

- | | | |
|---------|---------|---------|
| 1. (2) | 21. (4) | 41. (3) |
| 2. (1) | 22. (3) | 42. (1) |
| 3. (1) | 23. (1) | 43. (2) |
| 4. (4) | 24. (2) | 44. (3) |
| 5. (2) | 25. (1) | 45. (1) |
| 6. (3) | 26. (4) | 46. (3) |
| 7. (1) | 27. (4) | 47. (4) |
| 8. (3) | 28. (3) | 48. (1) |
| 9. (1) | 29. (2) | 49. (1) |
| 10. (1) | 30. (3) | 50. (2) |
| 11. (1) | 31. (2) | 51. (4) |
| 12. (1) | 32. (3) | 52. (3) |
| 13. (3) | 33. (4) | 53. (1) |
| 14. (4) | 34. (3) | 54. (1) |
| 15. (4) | 35. (2) | 55. (4) |
| 16. (1) | 36. (1) | 56. (3) |
| 17. (3) | 37. (1) | 57. (4) |
| 18. (2) | 38. (4) | 58. (1) |
| 19. (2) | 39. (3) | 59. (2) |
| 20. (4) | 40. (2) | |