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NEET CELL: THE UNIT OF LIFE — MITOCHONDRIA AND PLASTIDS — PYQS

Max. Marks: 72 **Questions:** 18

Section A (MCQ) — 18 questions

Q.1 Mitochondrial inner membrane encloses _____ . [RE-NEET (UG) 2026]

(1) aqueous humor (2) matrix
(3) cytosol (4) mucus

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Q.2 The plastid that stores xanthophyll is known as _____. [RE-NEET (UG) 2026]

(1) amyloplast (2) chloroplast
(3) chromoplast (4) aleuroplast

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Q.3 The DNA present in chloroplast is: [NEET (UG) 2024]

(1) Linear, double stranded
(2) Circular, double stranded
(3) Linear, single stranded
(4) Circular, single stranded

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Q.4 Given below are two statements:
Statement-I: Mitochondria and chloroplasts are both double membrane bound organelles.
Statement-II: Inner membrane of mitochondria is relatively less permeable, as compared to chloroplast.

In the light of the above statements, choose the most appropriate answer from the options given below: [NEET (UG) 2024]

(1) Both Statement-I and Statement-II are correct.
(2) Both Statement-I and Statement-II are incorrect.
(3) Statement-I is correct but Statement-II is incorrect.
(4) Statement-I is incorrect but Statement-II is correct.

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Q.5 Match **List-I** with **List-II**.

List-I		List-II	
a.	Cristae	i.	Primary constriction in chromosome
b.	Thylakoids	ii.	Disc-shaped sacs in Golgi apparatus
c.	Centromere	iii.	Infoldings in mitochondria
d.	Cisternae	iv.	Flattened membranous sacs in stroma of plastids

Choose the correct answer from the options given below. [NEET (UG) 2021]

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

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Q.6 Which of the following statements regarding mitochondria is **incorrect**? [NEET (UG) 2019]

(1) Inner membrane is convoluted with infoldings
(2) Mitochondrial matrix contains single circular DNA molecule and ribosomes
(3) Outer membrane is permeable to monomers of carbohydrates, fats and proteins
(4) Enzymes of electron transport are embedded in outer membrane

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Q.7 Which of the following cell organelles is responsible for extracting energy from carbohydrates to form ATP? [NEET 2017]

(1) Ribosome (2) Mitochondrion
(3) Chloroplast (4) Lysosome

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Q.8 Mitochondria and chloroplast are-
Which one of the following options is correct?

A. semi-autonomous organelles
B. formed by division of pre-existing organelles and they contain DNA but lack protein synthesising machinery [NEET 2016 (Phase 1)]

(1) Both A and B are false
(2) Both A and B are correct
(3) B is true but A is false
(4) A is true but B is false

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Q.9 Match the columns and identify the correct option. [AIPMT 2015]

Column I		Column II	
a.	Thylakoids	i.	Disc-shaped sacs in 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) ⟶ (iv), (b) ⟶ (ii), (c) ⟶ (i), (d) ⟶ (iii)
(2) (a) ⟶ (iv), (b) ⟶ (iii), (c) ⟶ (i), (d) ⟶ (ii)
(3) (a) ⟶ (iii), (b) ⟶ (iv), (c) ⟶ (i), (d) ⟶ (ii)
(4) (a) ⟶ (iii), (b) ⟶ (i), (c) ⟶ (iv), (d) ⟶ (ii)

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Q.10 The structures that are formed by stacking of organized flattened membranous sacs in the chloroplasts are [AIPMT 2015 (Cancelled)]
(1) Stroma lamellae (2) Cristae
(3) Stroma (4) Grana

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Q.11 Which of the following types of plastids does not contain stored food material ? [NEET 2013 (Karnataka)]
(1) Elaioplasts (2) Chromoplasts
(3) Amyloplasts (4) Aleuroplasts

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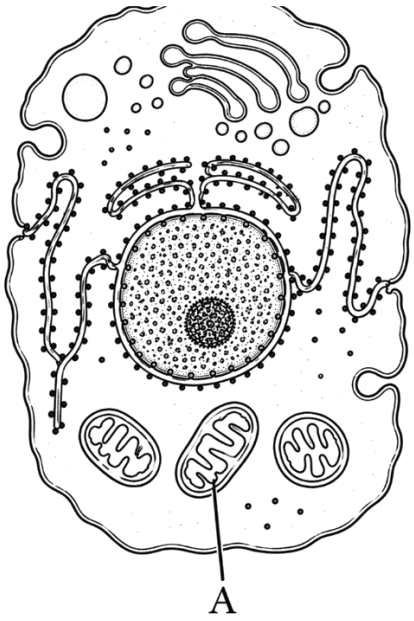
Q.12 Select the alternative giving correct identification and function of the organelle 'A' in the diagram [NEET 2013 (Karnataka)]



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

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Q.13 Which one of the following cellular parts is correctly described ? [AIPMT 2012 (Mains)]
(1) Lysosomes - optimally active at a pH of about 8.5
(2) Centrioles - sites for active RNA synthesis
(3) Thylakoids - flattened membranous sacs forming the grana of chloroplasts
(4) Ribosomes - those on chloroplasts are larger (80S) while those in the cytoplasm are smaller (70S)

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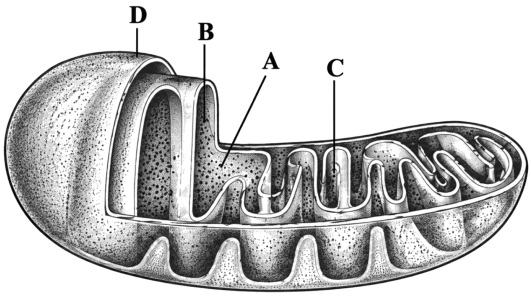
Q.14 The figure below shows the structure of a mitochondrion with its four parts labelled (A), (B), (C) and (D). Select the part correctly matched with its function. [AIPMT 2011 (Mains)]



(1) Part (B) : Inner membrane – forms infoldings called cristae

(2) Part (C) : Cristae – possess single circular DNA molecule and ribosomes

(3) Part (A) : Matrix – major site for respiratory chain enzymes

(4) Part (D) : Outer membrane – gives rise to inner membrane by splitting

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Q.15 Which one of the following has its own DNA?

[AIPMT 2010 (Prelims)]

(1) Dictyosome (2) Mitochondria

(3) Peroxisome (4) Lysosome

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Q.16 Select the wrong statement from the following:

[AIPMT 2007]

(1) The chloroplasts are generally much larger than mitochondria

(2) Both chloroplasts and mitochondria contain DNA

(3) Both chloroplasts and mitochondria contain an inner and an outer membrane

(4) Both chloroplasts and mitochondria have an internal compartment, the thylakoid space bounded by the thylakoid membrane

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Q.17 Which of the following statements regarding mitochondrial membrane is not correct ?

[AIPMT 2006]

(1) The inner membrane is highly convoluted forming a series of infoldings

(2) The outer membrane resembles a sieve

(3) The outer membrane is permeable to all kinds of molecules

(4) The enzymes of the electron transfer chain are embedded in the outer membrane

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Q.18 In chloroplasts, chlorophyll is present in the :-

[AIPMT 2004]

(1) Outer membrane (2) Inner membrane

(3) Thylakoids (4) Stroma

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	**2**	**3**	**2**	**3**	**4**	**4**	**2**	**4**	**3**	**4**	**2**
Ques.	12	13	14	15	16	17	18				
Ans.	**2**	**3**	**1**	**2**	**4**	**4**	**3**				