

YAKEEN NEET 2.0

2026

Biological Classification

Botany

Lecture - 07

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Physics Wallah



Topics to be covered

1

Plantae , Animalia ,Summary .

2

200 QUESTION (BIO class + Cell cycle).

3

4

2.4 KINGDOM PLANTAE

Kingdom Plantae includes all eukaryotic chlorophyll-containing organisms commonly called plants. A few members are partially heterotrophic such as the insectivorous plants or parasites. **Venus fly trap** and **Venus fly trap** are examples of insectivorous plants and parasite.

Dionaea

* Insect.
Leaf modify into scales
Chlorophyll absent



Bladderwort

Cuscuta is a

Utricularia

Insectiv.

Cuscuta
Total stem parasite.
present
on
stem of
other
plant

The plant cells have an eukaryotic structure with prominent chloroplasts and cell wall mainly made of cellulose. You will study the eukaryotic cell structure in detail in Chapter 8. Plantae includes algae, bryophytes, pteridophytes, gymnosperms and angiosperms.

Life cycle of plants has two distinct phases – the diploid sporophytic and the haploid gametophytic – that alternate with each other. The lengths of the haploid and diploid phases, and whether these phases are free-living or dependent on others, vary among different groups in plants. This phenomenon is called **alternation of generations**. You will study further details of this kingdom in Chapter 3.

gamete produce.

spore produce.

2.5 KINGDOM ANIMALIA

This kingdom is characterised by heterotrophic eukaryotic organisms that are multicellular and their cells lack cell walls. They directly or indirectly depend on plants for food. They digest their food in an internal cavity and store food reserves as glycogen or fat.

Carnivores

herbivores

Their mode of nutrition is holozoic – by ingestion of food. They follow a definite growth pattern and grow into adults that have a definite shape and size. Higher forms show elaborate sensory and neuromotor mechanism. Most of them are capable of locomotion.

The sexual reproduction is by copulation of male and female followed by embryological development. Salient features of various phyla are described in Chapter 4.

Question

Each of the following characteristics represent a Kingdom proposed by Whittaker.
Arrange the following in increasing order of complexity of body organization. (2025)

- A. Multicellular heterotrophs with cell wall made of chitin. **Fun**
- B. Heterotrophs with tissue/organ/organ system level of body organization. **Anim**
- C. Prokaryotes with cell wall made of polysaccharides and amino acids. **Mon**
- D. Eukaryotic autotrophs with tissue/organ level of body organization. **Plantae**
- E. Eukaryotes with cellular body organization. **prohsfa**

Choose the correct answer from the options given below:

1 A, C, E, B, D

2 ~~C, E, A, D, B~~

3 A, C, E, D, B

4 ~~C, E, A, B, D~~

Question



Which one of the following is not a criterion for classification of fungi?

(2024)

- 1** Mode of spore formation
- 2** Fruiting body
- 3** Morphology of mycelium
- 4** Mode of nutrition

Question

Match List-I with List-II.

(2024)

Choose the correct answer from the options given below:

1 A-(III), B-(II), C-(I), D-(IV)

2 A-(IV), B-(III), C-(II), D-(I)

3 A-(III), B-(II), C-(IV), D-(I)

4 A-(I), B-(III), C-(II), D-(IV)

	List-I		List-II
(A)	<i>Rhizopus</i>	(I)	Mushroom
(B)	<i>Ustilago</i>	(II)	Smut fungus
(C)	<i>Puccinia</i>	(III)	Bread mould
(D)	<i>Agaricus</i>	(IV)	Rust fungus

Question

Match List-I with List-II.

(2022)

Choose the correct answer from the option given below:

1

A-III; B-II; C-IV; D-I

2

A-III; B-IV; C-II; D-I

3

A-I; B-II; C-III; D-IV

4

A-IV; B-II; C-I; D-III

List-I	List-II
(A) <i>Puccinia</i>	(I) Parasitic fungus on mustard
(B) <i>Neurospora</i>	(II) Dead substrates
(C) Saprophytes	(III) Wheat rust
(D) <i>Albugo</i>	(IV) Biochemical and Genetic Work

Question

Given below are two statements:

Statement-I: Mycoplasma can pass through less than 1 micron filter size. C

Statement-II: Mycoplasma are ^{like} bacteria with ^{out} cell wall. X.

In the light of the above statements, choose the most appropriate answer from the options given below (2022)

1 Statement-I is incorrect but Statement-II are correct

2 Both Statement-I and Statement-II are correct

3 Both Statement-I and Statement-II are incorrect

4 Statement-I is correct but Statement-II is incorrect

Question

Which of the following is a correct statement?

(2022)

1

Mycoplasma have DNA, ribosome and cell wall. X

2

Cyanobacteria are a group of autotrophic organisms classified under kingdom Monera

3

Bacteria are exclusively heterotrophic organisms X.

mostly

4

Slime moulds are saprophytic organisms classified under Kingdom Monera

Question

Identify the asexual reproductive structure associated with *Penicillium*:

(2022)

- 1** Gemmules
- 2** Buds
- 3** Zoospores
- 4** Conidia



Question

Mad cow disease in cattle and Cr Jacob disease in humans are due to infection by:

(2022 phase -2)

- 1** Prion

- 2** Bacterium

- 3** Virus

- 4** Viroid

Question



Which of the following statements is correct?

(2021)

- 1 Fusion of protoplasms between two motile or nonmotile gametes is called plasmogamy. C
- 2 Organisms that depend on living plants are called saprophytes.
- 3 Some of the organisms can fix atmospheric nitrogen in specialized cells called sheath cells. hetnr..
- 4 Fusion of two ~~cells~~ ^{Nucleus} is called Karyogamy

Question

Which of the following is correct about viroids?

(2020)

- 1 They have free RNA without protein coat.
- 2 They have DNA with protein coat.
- 3 They have free DNA without protein coat.
- 4 They have RNA with protein coat.



Question

Which of the following is incorrect about Cyanobacteria?

(2020 Covid Re-NEET)

- 1 They lack heterocysts *have*
- 2 They often form blooms in polluted water bodies
- 3 They have chlorophyll 'a' similar to green plants C
- 4 They are photoautotrophs C

Question



Which of the following statement is incorrect?

(2019)

- 1 Viroids lack a protein coat. C
- 2 Viruses are obligate parasites. C
- 3 Infective constituent in viruses is the protein coat. N.C.
- 4 Prions consist of abnormally folded proteins.

Question

Which of the following statements is incorrect?

(2019)

- 1 Morels and truffles are edible delicacies.

C

- 2 Claviceps is a source of many alkaloids and LSD.

LSD. C

- 3 Conidia are produced exogenously and ascospores endogenously.

C

- 4 Yeasts have filamentous bodies with long thread-like hyphae.

4

Question

Select the wrong statement

(2018)

- 1 Cell wall is present in members of Fungi and Plantae C
- 2 Mushrooms belong to Basidiomycetes C
- 3 Pseudopodia are locomotory and feeding structures in Sporozoans
- 4 Mitochondria are the powerhouse of the cell in all kingdoms except Monera C

Question

After karyogamy followed by meiosis, spores are produced exogenously in

(2018)

Sexual (Basidio)

- 1 *Neurospora* (endogenous)
- 2 *Alternaria*
- 3 *Agaricus*
- 4 *Saccharomyces*

Question

Oxygen is not produced during photosynthesis by

(2018)

1

Nostoc

(BGA)

O_2 ✓

2

Green sulphur bacteria — Bacl
 $H_2S \rightarrow S.$

3

Cycas (gym)

O_2 ✓

4

Chara (Alg)

O_2 ✓

Question



Which of the following organisms are known as chief producers in the oceans? (2018)

- 1** Dinoflagellates
- 2** Diatoms
- 3** Cyanobacteria
- 4** Euglenoids



Question



Ciliates differ from all other protozoans in

(2018)

- 1** Using flagella for locomotion
- 2** Having a contractile vacuole for removing excess water
- 3** Using pseudopodia for capturing prey
- 4** Having two types of nuclei

Question

Which of the following are found in extreme saline conditions?

(2017)

- 1** Archaebacteria
- 2** Eubacteria
- 3** Cyanobacteria
- 4** Mycobacteria



Question

Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen? (2017)

1 *Bacillus*

2 *Pseudomonas*

3 *Mycoplasma*

4 *Nostoc*



Question



Viroids differ from viruses in having:

(2017)

- 1** DNA molecules with protein coat
- 2** DNA molecules without protein coat
- 3** RNA molecules with protein coat
- 4** RNA molecules without protein coat



Question

An example of flagellate protozoan is:

(2017)

- 1** *Paramoecium*
- 2** *Trypanosoma*
- 3** *Entamoeba*
- 4** *Plasmodium*



Question

Which of the following is not true of organisms in the kingdom Monera?

(2017)

- 1 They originated at least 3.5 billion years ago
- 2 They have prokaryotic cellular organisation
- 3 They may be autotrophic or heterotrophic in nature
- 4 They reproduce by mitosis

Amitosis
= .

Question



Select the sac fungus:

(2017)

1 *Albugo*

2 *Agaricus*

3 *Neurospora*

4 *Mucor*

Question



The protein coat around a virus is called:

(2017)

- 1** *Capsule*
- 2** *Core*
- 3** *Capsid* ✓
- 4** *Trichome*

Question

Select the wrong statement:

(2016 - II)

- 1** Diatoms are chief producers in the oceans
- 2** Diatoms are microscopic and float passively in water
- 3** The walls of diatoms are easily destructible 
- 4** 'Diatomaceous earth' is formed by the cell wall of diatoms

Methanogens belong to:

(2016 - II)

- 1** Dinoflagellates
- 2** Slime moulds
- 3** Eubacteria
- 4** Archaebacteria

Question

Which one of the following is wrong for fungi?

(2016 - II)

- 1 They are heterotrophic
- 2 They are both unicellular and multicellular
- 3 They are eukaryotic
- 4 All fungi possess a purely cellulosic cell wall

chitin

Question

The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the: (2016 - I)

- 1** Halophiles
- 2** Thermoacidophiles
- 3** Methanogens
- 4** Eubacteria



Question

Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom: (2016 - I)

- 1** Animalia
- 2** Monera
- 3** Protista ✓
- 4** Fungi

Question

Which one of the following statements is wrong?

(2016 - I)

- 1 Cyanobacteria are also called blue-green algae
- 2 Golden algae are also called desmids
- 3 Eubacteria are also called **false** bacteria
- 4 Phycomycetes are also called algal fungi



Question

One of the major components of cell wall of most fungi is:

(2016 - I)

- 1** Chitin
- 2** Peptidoglycan
- 3** Cellulose
- 4** Hemicellulose

Question

Which of the following statements is wrong for viroids?

(2016 - I)

- 1** They lack a protein coat
- 2** They are smaller than viruses
- 3** They causes infections
- 4** Their RNA is of high molecular weight

Question

Which one of the following matches is correct?

(2015)

1	Mucor	Reproduction by Conjugation <i>(NOT IN NICE RT)</i>	Ascomycetes
2	Agaricus	Parasitic fungus <i>Saprophytic</i> .	Basidiomycetes
3	Phytophthora	Aseptate mycelium	Basidiomycetes
4	Alternaria	Sexual reproduction absent	Deuteromycetes

Question

The gut of cow and buffalo possess:

(2015)

- 1** Methanogens
- 2** Cyanobacteria
- 3** Fucus
- 4** Chlorella

Question

True nucleus is absent in:

(2015)

- 1** Vaucheria
- 2** Volvox
- 3** Anabaena
- 4** Mucor

Choose the wrong statements:

(2015 Re)

- 1** Neurospora is used in the study of biochemical genetics
- 2** Morels and truffles are poisonous mushrooms
- 3** Yeast is unicellular and useful in fermentation
- 4** Penicillium is multicellular and produces antibiotics

Question

In which group of organisms the cell walls form two thin overlapping shells which fit together? (2015 Re)

- 1** Euglenoids
- 2** Dinoflagellates
- 3** Slime moulds
- 4** Chrysophytes



Question

Which of the following are most suitable indicators of SO₂ pollution in the environment?
(2015 Re)

- 1** Conifers
- 2** Algae
- 3** Fungi
- 4** Lichens



Question

Cell wall is absent in:

(2015 Re)

- 1** Funaria
- 2** Mycoplasma
- 3** Nostoc
- 4** Aspergillus

Question

Select the wrong statements:

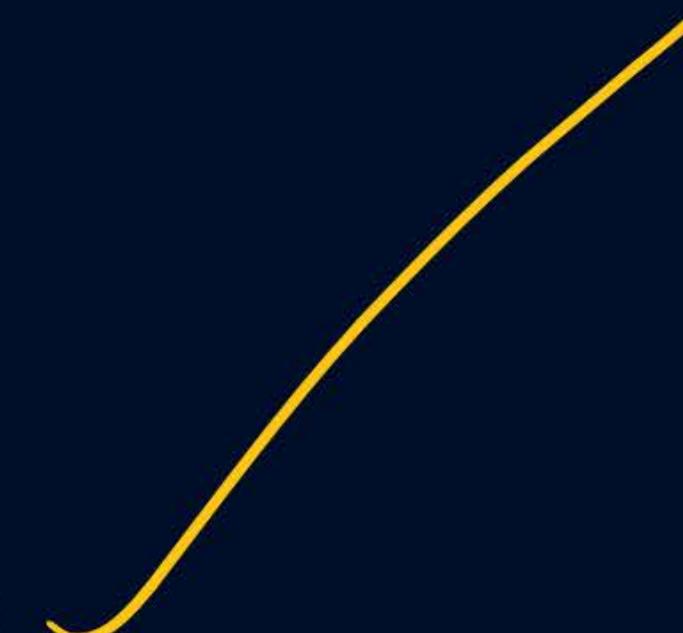
(2015 Re)

- 1** W.M. Stanley showed that viruses could be crystallised
- 2** The term '*Contagium vivum fluidum*' was coined by M.W. Beijerinck
- 3** Mosaic disease in tobacco and AIDS in human being are caused by viruses
- 4** The viroids were discovered by D.J. Ivanowsky

Question

The imperfect fungi which are decomposer of litter and help in mineral cycling belong to:
(2015 Re)

- 1** Basidiomycetes
- 2** Phycomycetes
- 3** Ascomycetes
- 4** Deuteromycetes



Question

Pick up the wrong statement:

(2015 Re)

- 1 Protista has photosynthetic and heterotrophic modes of nutrition C
- 2 Some fungi are edible
- 3 Nuclear membrane is present in Monera ~~C~~
- 4 Cell wall is absent in Animalia

Viruses have:

(2014)

1 Both DNA and RNA

2 DNA enclosed in a protein coat

3 Prokaryotic nucleus

4 Single chromosome

Question

Which one of the following living organisms completely lacks a cell wall? (2014)

1 Blue - green algae

2 Cyanobacteria

3 Sea - fan (Gorgonia)

4 *Saccharomyces*

Question

A location with luxuriant growth of lichens on the trees indicates that the: (2014)

- 1** Location is not polluted
- 2** Trees are very healthy
- 3** Trees are heavily infested
- 4** Location is highly polluted

Five kingdom system of classification suggested by R.H. Whittaker is not based on (2014)

1 Complexity of body organisation

2 Presence or absence of a well defined nucleus

3 Mode of reproduction

4 Mode of nutrition

Question

Which one of the following fungi contains hallucinogens?

(2014)

1 *Ustilago* sp.

2 *Morchella esculenta*

3 *Amanita muscaria*

4 *Neurospora* sp.

Archaeabacteria differ from Eubacteria in:

(2014)

- 1** Mode of reproduction
- 2** Cell membrane structure
- 3** Mode of nutrition
- 4** Cell shape

Question

Which of the following shows coiled RNA strand and capsomeres?

(2014)

- 1** Retrovirus
- 2** Polio virus
- 3** Tobacco mosaic virus
- 4** Measles virus

Question

Pigment-containing membranous extensions in some cyanobacteria are: (2013)

- 1** Chromatophores
- 2** Heterocyst's
- 3** Basal bodies
- 4** Pneumatophores

Question

In the five-kingdom classification, *Chlamydomonas* and *Chlorella* have been included in:
(2012 Mains)

- 1** Protista
- 2** Algae
- 3** Plantae
- 4** Monera

Question

How many organisms in the list given below are autotrophs?

Lactobacillus, Nostoc, Chara, Nitrosomonas, Nitrobacter, Streptomyces, Saccharomyces,
Trypanosoma, Porphyra, Wolfia:

(H)

Red algae autotrophs
Auto.

bacteria

(H)

(2012 Mains)

1 Four

2 Five

3 Six

4 Three

I am
Coming

Question

The Cyanobacteria are also referred to as:

(2012 Pre)

- 1** Blue green algae
- 2** Protists
- 3** Golden algae
- 4** Slime moulds

Question

Nuclear membrane is absent in:

(2012 Pre)

1 Nostoc

2 Penicillium

3 Agaricus

4 Volvox

Question



Which one single organism or the pair of organisms is correctly assigned to its or their named taxonomic group? (2012 Pre)

- 1** Nostoc and Anabaena are examples of Protista
- 2** Paramecium and Plasmodium belong to the same kingdom as that of Penicillium
- 3** Lichen is a composite organism formed from the symbiotic association of an algae and a protozoan
- 4** Yeast used in making bread and beer is a fungus

Question

The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are the ones categorized as: (2012 Pre)

- 1** Heterotrophic bacteria
- 2** Cyanobacteria
- 3** Archaebacteria
- 4** Chemosynthetic autotrophs

Question



Which statement is wrong for virus?

(2012 Pre)

- 1** Antibiotics have no effect on them
- 2** All are parasites
- 3** All of them have helical symmetry
- 4** They have ability to synthesize nucleic acids and proteins by the help of host systems

Question



Maximum nutritional diversity is found in the group:

(2012 Pre)

- 1** Plantae
- 2** Fungi
- 3** Animalia
- 4** Monera

Question



Five kingdom classification suggested by RH Whittaker is not based on

- 1** Presence or absence of nucleus
- 2** Mode of reproduction
- 3** Mode of nutrition
- 4** Complexity of body organization

Question

Which of the following is not correct?

- 1 Aristotle was the earliest to attempt scientific basis of classification
- 2 Aristotle used simple morphological characteristics to classify plants and animals
- 3 Aristotle classified plants into herbs, shrubs and trees
- 4 Aristotle classified animals as herbivores, omnivores and carnivores

Question



Which of the following is not true about the Two Kingdom system of classification?

- 1** This system did not distinguish between unicellular and multicellular or between prokaryotes and eukaryotes **C**
- 2** This system did distinguish between photosynthetic green algae and non photosynthetic fungi **X**
- 3** A large number of organisms did not fall in any category **C**
- 4** This system of classification was given by Linnaeus. **C**

Question



Which of the following is not true about classification systems?

- 1 Classification systems have undergone changes over time C
- 2 Plant and animal kingdoms have been a constant under all systems C
- 3 The group/organisms to be included under kingdoms have not been changing. ~~C~~
- 4 Earlier classification systems grouped widely different groups together C

Question

Assertion: Earlier classifications included bacteria, fungi, mosses, ferns, gymnosperms, angiosperms and blue green algae under plants.

Reason: These all organisms had cell walls in their cellular structure.

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Which one of the following is not a drawback of earlier classifications?

- 1 Prokaryotic bacteria and the blue green algae were placed together with other groups which were eukaryotic D.
- 2 Unicellular Chlamydomonas and multicellular Spirogyra were placed together under algae D
- 3 Heterotrophic fungi and autotrophic green plants were not differentiated D.
- 4 Cell structure, Thallus organization, mode of nutrition and reproduction along with phylogenetic relationships were given importance ✓

Question



Which of the following statements is incorrect?

- 1 All prokaryotic organisms are placed in Kingdom Monera C
- 2 Chlamydomonas and Chlorella were earlier placed in algae within Kingdom Plantae but are now placed in Kingdom Protista with Paramecium and Amoeba C
- 3 An attempt has been made to evolve classification system which not only reflects morphological, reproductive and physiological similarities but is also phylogenetic L
- 4 All eukaryotic organisms are placed in Kingdom Protista
 ^
 Unicell
 P-A,

Question

An important criterion for modern day classification is

- 1 Resemblances in morphology
- 2 Anatomical and physiological traits
- 3 Breeding habits
- 4 Presence or absence of notochord



Question

Match the following

- 1** A-4, B-1, C-3, D-2
- 2** A-1, B-2, C-3, D-4
- 3** A-3, B-4, C-2, D-1
- 4** A-2, B-4, C-3, D-1

A	Halophile	1	Hot spring
B	Thermoacidophiles	2	Aquatic environment
C	Methanogens	3	Guts ruminants
D	Cyanobacteria	4	Salty area

Question

Which of the following is not true about bacteria?

- 1 DNA replication in bacteria occurs within the ~~nucleolus~~ and prior to fission.
- 2 Glycocalyx provides sticky character to the bacterial cell C
- 3 Archaebacteria differ from eubacteria in cell membrane structure & cell wall. C (NOT IN NCERT)
- 4 Pigments containing membranous extensions in some Cyanobacteria are called chromatophores C

Question

Which of the following **is not true** about bacteria ?

- a. Bacteria are most abundant microorganisms ✓
- b. Bacterial structure is simple but behavior is complex ✓
- c. Majority of bacteria are heterotrophs. ✓✓
- d. Bacteria are cosmopolitan in nature. ✓✓
- e. Bacteria and Amoeba are sole members of Kingdom Monera X
- f. Bacteria show most extensive metabolic diversity ✓✓

1 Only e

2 e, f and b

3 e, b and c

4 e, b, c, f and a

Question

Match the following

- 1** A- 4, B-3, C-2, D-1
- 2** A-3, B-4, C-2, D-1
- 3** A-1, B-3, C-2, D-4
- 4** A-2, B-1, C-4, D-3

A	Coccus	1	Comma
B	Bacillus	2	Spiral
C	Spirillum	3	Rod
D	Vibrio	4	Spherical

Question



Assertion: Archaebacteria are able to survive extreme conditions. C

Reason: They have a cell wall which is made of non cellulosic polysaccharides.

(pseudomurein C .

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false

Question

Which of the following **is not** true about Cyanobacteria?

- (a) They have chlorophyll a similar to green plants
- (b) Cyanobacteria can be colonial or filamentous
- (c) They often form bloom in polluted water bodies
- (d) Few Cyanobacteria can fix nitrogen in specialized cells called heterocysts.
- (e) They can be seen in freshwater, marine or terrestrial environment

1 Only a

2 a and e

3 a, b and e

4 All are correct

Question

Which of the following is not a useful function of bacteria?

- 1 Making curd from milk
- 2 production of antibiotics
- 3 fixing nitrogen in legume
- 4 Citrus canker (Disease)

Question

me

BONUS



PROTISTA

Choose the incorrect statement

- (a) Chlorella, tetanus and typhoid are bacterial diseases
- (b) Most of the bacteria are decomposers.
- (c) Chemosynthetic autotrophic bacteria oxidize various inorganic substances like ammonia and use the released energy for their ATP production
- (d) Nostoc and Anabaena are photosynthetic autotrophs
- (e) Nostoc and Anabaena play a great role in recycling nutrients like nitrogen, phosphorus, iron and sulfur

1

e and d

2

Only e & a

3

e, b and a

4

a and b

Question

Choose the incorrect statement

- (a) In eubacteria, the cellular component that resembles a eukaryotic cell is plasma membrane.
- (b) Viruses are the smallest living cells known.
- (c) Methanogens are archaeabacteria which produce methane in marshy areas
- (d) Mycoplasma lacks a cell wall and can survive without oxygen.
- (e) Many mycoplasma are pathogenic in plants and animals.

1 a, e and b

3 Only b

2 Only a

4 a, c, d

Question



Which of the following statements about mycoplasma is wrong?

- 1** They are pleomorphic C
- 2** They are ^{not} sensitive to penicillin. (✓)
- 3** They are also called PPLO C
- 4** They cause disease in plants C

Question

Which of the following is not a mode of reproduction in bacteria?

- 1 Bacteria reproduce mainly by fission C
- 2 Few bacteria produce spores under unfavorable conditions C
- 3 Bacteria show primitive type of DNA transfer from one bacterium to another C
- 4 Few bacteria show ~~true~~ sexual reproduction

Question

Assertion: The boundaries of the kingdom Protista are not well defined C

Reason: What may be a photosynthetic Protist to one botanist may be a plant to another. C

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Which of the following is **incorrect** about diatoms?

- (a) Diatoms are chief producers of ocean ✓
- (b) In diatoms, the cell wall form two thin overlapping shells, which fit together as in soap box ✓
- (c) They are ~~only~~ seen in freshwater environment
- (d) They are microscopic and float passively in water current. ✓

1 Only d

2 Only c

3 All are correct

4 Only b

Question

Ciliates differ from all other protozoans in

- 1 using flagella for locomotion X
- 2 having a contractile vacuole for removing excess water
- 3 using pseudopodia for capturing prey. X
- 4 having two type of nuclei

Amoeboid protozoa



Question

Select the wrong statement

1

The walls of diatoms are easily ⁱⁿdestructible

2

Diatomaceous earth is formed by the cell wall of diatoms C

3

Diatoms are used in polishing, filtration of oils and syrups. C

4

Diatoms are photosynthetic C

Question



Which of the following is incorrect about Dinoflagellate?

- 1 They are mostly marine and photosynthetic C
- 2 The cell wall has stiff cellulose plates on the outer surface. C
- 3 They possess a single flagellum for motility
- 4 They appear red, yellow, green etc depending on the main pigment present in their cells

Question

Match the following

- 1 A-4, B-3, C-2, D-1, E-6, F-5
- 2 A-4, B-2, C-3, D-1, F-6, E-5
- 3 A-4, B-1, C-2, D-3, E-6, F-5
- 4 A-1, B-3, C-2, D-4, F-6, E-5

A	Amoebiod Protozoan	1	Plasmodium
B	Flagellated Protozoan	2	Paramecium
C	Ciliated protozoan	3	Trynopsoma
D	Sporozoans	4	Entamoeba
E	Red tide ✓	5	Trichodesmium
F	Red sea ✓	6	Goyaulax

Question



Which of the following is not true about euglenoids?

- 1** Euglenoids shows mixotrophic nutrition C
- 2** Most of them are marine water organisms and are found in stagnant water. ~~C~~
- 3** They have a protein rich layer called pellicle instead of cell wall C
- 4** The pigments of euglenoids are identical to those present in higher plants. C

Question

Choose the incorrect statement

- 1 Slime molds are saprophytic protists C
- 2 Protozoans are heterotrophs and live as predators and parasites C
- 3 The spores of slime mold possess true walls and are extremely resistant and survive for many years C
- 4 ~~Euglenoids~~ PROTOZOA are primitive relatives of animals

Question

Choose the incorrect statement

- (a) Slime mold forms an aggregation called plasmodium under suitable conditions. ✓
- (b) Amoeba moves and captures their prey by putting out false feet called pseudopodia
- (c) Paramecium is a malarial parasite
- (d) Sporozoans have an infectious spore-like stage in their life cycle.
- (e) Paramecium are aquatic, actively moving organisms because of the presence of thousands of cilia.

1 c and e

2 Only c

3 Only e

4 All are correct

Question

Choose the correct statement

- 1 Flagellated protozoans are either free living or parasitic C
- 2 Trypanosoma does ~~not~~ possess flagella
- 3 Plasmodium has a gullet that opens to the outside of the cell surface.
- 4 Under suitable conditions, plasmodium of slime molds differentiates and forms fruiting bodies
Unf.

Question

Choose the incorrect statement

- 1** The body of slime mold moves along decaying twigs and leaves engulfing organic material. C
- 2** Marine forms of amoeboid protozoans have silica shells on surface C.
- 3** The coordinated movement of rows of cilia in ciliates causes the water laden with food to be steered into a gullet. C
- 4** Paramecium causes sleeping sickness. ✓

Question

Which of the following is not true about members of Phycomycetes?

- (a) They can be seen in aquatic habitats, decaying wood or as obligate parasites on plants.
- (b) Asexual reproduction takes place by zoospores or by aplanospores.
- (c) Spores are exogenously produced in sporangium.
- (d) Mycelium is septate and coenocytic.
- (e) Zoospores are motile while aplanospores are non motile

1

d and c

2

Only d

3

Only c

4

a

Question

Which of the following is not true about Ascomycetes?

- (a) They are called as sac-fungi
- (b) Mycelium is unbranched and septate
- (c) Sexual spores are conidia produced exogenously on conidiophores
- (d) Sexual spores are advisories produced endogenously on ascii.
- (e) They are saprophytic, Decomposers, parasitic or coprophilous.

1 b and c

2 b and d

3 Only c

4 b, e and d

Question



Choose the incorrect statement

- 1** Albugo is a parasitic fungus on mustard.
- 2** *Saccharomyces* belongs to class Phycomycetes and is multicellular
- 3** *Neurospora* is used extensively in biochemical and genetic work
- 4** Morels and buffels are edible.

Question



Which of the following is not true about Basidiomycetes?

- 1** Mycelium is branched and septate
- 2** Asexual spores are not found.
- 3** Vegetative reproduction by fragmentation is common.
- 4** Sex organs are present

Question

Which of the following is not true about Puffballs?

- (a) It belong to class Basidiomycetes
- (b) Karyogamy and meiosis take place in basidium producing 4 basidiospores.
- (c) The basidiospores are produced endogenously in basidium.
- (d) Basidia are arranged in fruiting Body called basidiocarp
- (e) Plasmogamy is brought about by fusion of two somatic cells of different strain.

1 c and e

2 Only e

3 Only c

4 b, c and e

Question



Assertion: Deuteromycetes are also known as imperfect fungi.

Reason: Only asexual and vegetative phases of this fungus are known.

- 1** If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2** If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3** If Assertion is true but Reason is false.
- 4** If both Assertion and Reason are false.

Question

Which of the following is not true about Deuteromycetes?

- (a) They reproduce only by asexual spores called conidia
- (b) Mycelium is septate and branched
- (c) Few members are saprophytic and parasitic.
- (d) Most of the members are Decomposers of litter and help in mineral cycling.
- (e) Once sexual stages of members were discovered, they are often moved to ascomycetes or Basidiomycetes

1 Only e

2 e, c and d

3 e and c

4 All are correct

Question

Match the following

1 A- 2, B-1, C-3, D-4, E-5

2 A-5, B-3, C-4, D-2, E-1

3 A-4, B-3, C-2, D-1, E-5

4 A-5, B-1, C-4, D-2, E-3

A	Ustilago	1	Bread Mold
B	Puccinia	2	Antibiotic
C	Agaricus	3	Rust
D	Penicillium	4	Mushroom
E	Rhizopus	5	Smut

Question

Which of the following is not true about fungi?

- 1** Fungi are cosmopolitan in nature.
- 2** White spots on mustard leaves are due to saprophytic fungus
- 3** Their bodies consist of long, slender; thread-like structures called hyphae.
- 4** The morphology of mycelium, mode of spore formation and fruiting body forms the basis of division of this kingdom into various classes.

Assertion: Fungi can live as symbionts

Reason: Fungi form an association with algae as lichens and with roots of higher plants as mycorrhiza

- 1** If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2** If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3** If Assertion is true but Reason is false.
- 4** If both Assertion and Reason are false.

Question

Which of the following is true about reproduction in fungi?

- 1** Vegetative reproduction takes place by fragmentation, fission and budding.
- 2** Asexual reproduction takes place by conidia or sporangiospore or zoospore.
- 3** Sexual reproduction takes place by oospores, ascospores and basidiospores.
- 4** All of the above

Question

Which of the following is not true about fungi

- 1** Fungi prefer to grow in a cold environment.
- 2** Most of the fungi are filamentous
- 3** The cell wall of fungi is composed of chitin and polysaccharides.
- 4** Most of the fungi are heterotrophs.

Question

Match the following

1 A-1, B-3, D-2, C-5, E-4

2 A- 1, B-3, C-2, D-4, E-5

3 A-3, B-4, C-2, D-5, E-1

4 A-2, B-1, C-4, D-3, E-5

A	Yeast	1	Deuteromycetes
B	Puccinia	2	Potato spindle tuber
C	Viroid	3	Bread and beer
D	Prions	4	Wheat rust
E	Colletotrichum	5	CJD

Question

Daisy is a young girl. Her mother is a working woman. One fine day, she gets late from work and asks Daisy to keep the food in the refrigerator after eating. Why do you think Daisy's mother advised her to do so?

- 1** Fungi prefer to grow in warm and humid places
- 2** Fungi are cosmopolitan in nature
- 3** Fungi gets killed in refrigerator
- 4** The cold air affects the cell wall of fungi and makes them ineffective

Question



Assertion: Members of Kingdom Plantae show a phenomenon called alternation of generations.

C

Reason: Life cycle of plants have two distinct phases: the diploid sporophyte and haploid gametophyte.

C

- 1 Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Assertion: All members of kingdom Plantae are completely autotrophic X.

Reason: Plant cells have prominent chloroplasts and lack cell walls.

- 1 Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question



Which of the following is not true about Kingdom Animalia?

- 1 It is characterized by heterotrophic eukaryotic organisms that are multicellular and lack cell walls. C
- 2 Mode of nutrition is holozoic C
- 3 Higher forms show elaborate sensory and neuromotor mechanisms C
- 4 Food is stored in the form of starch

Question

Assertion: Viruses did not find a place in Whittaker's classification C.

Reason: Viruses do not possess a cellular structure, can be crystallized and do not divide outside a cell. C

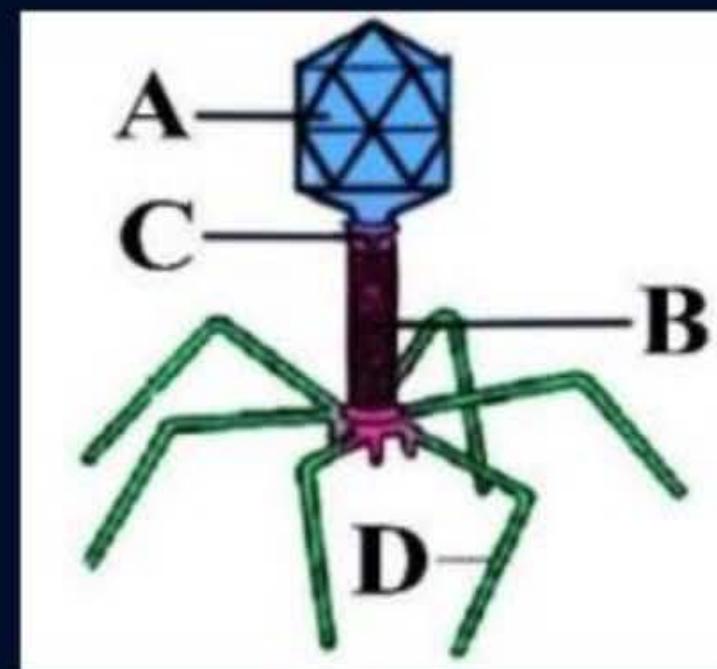
- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Select the option where all 4 parts are correct.

HW

- 1** A = Tail fibers, B = Head, C = Sheath, D = Collar
- 2** A = Sheath, B = Collar, C = Head, D = Tail fibers
- 3** A = Head, B = Sheath, C = Collar, D = Tail fibers
- 4** A = Collar, B = Tail fibers, C = Head, D = Sheath



Question

Assertion: Lichens are mutually useful associations between algae and fungi.

Reason: Algae prepares food for fungi and fungi provide shelter and absorb nutrients

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Which of the following is not true about Virus?

- 1 Viruses are obligate parasites C
- 2 Viruses contain genetic material, in addition to proteins C
- 3 Mostly double stranded RNA virus infect plants ~~Single~~
- 4 Capsomeres are arranged in helical or polyhedral geometric forms. C

Question

Match the following

1 A- 2, B-5, C-1, D-3, E-4

2 A-5, B-4, C-3, D-2, E-1

3 A-1, B-2, C-3, D-4, E-5

4 A-5, B-4, C-2, D-3, E-1

A	Capsid	1	Double stranded DNA virus
B	Capsomere	2	Protein coat
C	Bacteriophage	3	Fungal component
D	Mycobiont	4	Algal component
E	Phycobiont	5	Protein subunits

Question

How many statements are correct?

- (a) The RNA of viroid was of low molecular weight. ✓
- (b) WM Stanley showed that viruses can be crystallized and crystals consist largely of Proteins ✓
- (c) Fungi can be saprophytic or parasitic ✓
- (d) Viruses are inert inside the specific host cell. ✗
- (e) Viroids are found to have free DNA without protein coat

RNA

1 5

2 4

3 3

4 2

Question

Given below is a list of symptoms and diseases

Which of the following is not caused by a virus?

- (a) Mosaic formation ✓
- (c) Yellowing and vein clearing ✓
- (e) Herpes and influenza ✓
- (g) Mumps and Smallpox ✓
- (b) Leaf rolling and curling ✓
- (d) Stunted growth ✓
- (f) Typhoid B.

1 e, f and g

2 Only f

3 Only f, g and d

4 b and c

Question

How many of the following are correct

- (a) Ivanowsky recognised certain microbes as causal organisms of the mosaic disease of tobacco.
- (b) Viroids are smaller than viruses.
- (c) Beijerinck demonstrated that extract of infected plants of tobacco could cause infection in healthy plants and called fluid as *Contagium vivum* fluīdum*
- (d) Prions are ~~normally~~ folded DNA that cause neurodegenerative disorders.
- (e) T.O Diener discovered the infectious agent called viroid.

1 5

3 3

2 4

4 2

Question

Given below is a list of fungi. State how many fungi belong to the below mentioned classes Ascomycetes (A), Phycomycetes (P), Deuteromycetes (D) and Basidiomycetes (B)
(B) Mucor, Penicillium, Mushrooms, Bracket fungi, Alternaria, Puffballs, Trichoderma, Claviceps, Neurospora, Aspergillus, Ustilago, Rhizopus, Puccinia, Albugo, Yeast,

A

A

A

B

P

B

P

A

1

P-3, A- 5, B-5, D-2

2

P-4, A-6, B-3, D-2

3

P-6, A-4, B-2, D-3

4

P-7, A-3, B-2, D-3

Question

Assertion: Lichens are good pollution indicators.

Reason: They turn brown in polluted areas.

- 1** If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2** If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3** If Assertion is true but Reason is false.
- 4** If both Assertion and Reason are false.

Question



green algae.

How many of the following belong to Kingdom Protista?

Chlorella, Chlamydomonas, Blue green algae, Anabaena, Nostoc, Gonyalaux,
Trypanosoma, Plasmodium, Chrysophytes, Yeast, Arthropoda

P

P

P

F



M

P

1

4

2

5

3

6

4

8



Question

Arrange the steps involved in the sexual cycle of fungi in the correct order.

- (a) Fusion of two nuclei called Karyogamy.
- (b) Fusion of protoplasm between two motile or nonmotile gametes is called plasmogamy.
- (c) Meiosis in zygote resulting in haploid spores.

1 c, a, b

2 a, c, b

3 b, a, c

4 b, c, a

Question



Dikaryophase can be seen in which of the following classes of fungi?

- 1** Ascomycetes
- 2** Basidiomycetes
- 3** Both a and b
- 4** None of the above



Cell Cycle and Cell Division



Question

How many meiosis are required to form 100 pollen grains from microspore mother cells?

- 1** 100
- 2** 50
- 3** 25
- 4** 200

Question

What would be the DNA content in a diploid cell at anaphase-I if its egg cell has 10 pg DNA?

- 1** 10 pg
- 2** 20 pg
- 3** 30 pg
- 4** 40 pg

Question

If a sperm of an organism has 5 pg of DNA in its nucleus, how much DNA would be present in a somatic cells of this organism during metaphase-I?

- 1** 5 pg
- 2** 10 pg
- 3** 20 pg
- 4** 40 pg

Question

If the amount of DNA in meiocyte at G1 phase is 2C then, the amount of DNA in each daughter cell, after meiosis-I will be

- 1** 2 C
- 2** 1 C
- 3** 4 C
- 4** 8 C

Question

If spores have 10 chromosomes and 20 picogram DNA then what would be the chromosome number and DNA amount in spore mother cell at the end of S-phase in the life cycle of same plant?

- 1** 40 chromosomes and 80 pg DNA
- 2** 20 chromosomes and 80 pg DNA
- 3** 20 chromosomes and 40 pg DNA
- 4** 40 chromosomes and 40 pg DNA

Question

If the number of bivalents aligned on the equatorial plate of metaphase-I is 10. What will be the number of chromosomes in each haploid cell after meiosis II?

- 1** 5
- 2** 10
- 3** 15
- 4** 20

Question

If egg of an organism has 20 pg of DNA in its nucleus. How much DNA would a diploid cell of same organism have in pachytene (x), diakinesis (y) and anaphase-I (z)?

- 1** $x = 40 \text{ pg}; y = 40 \text{ pg}; z = 80 \text{ pg}$
- 2** $x = 80 \text{ pg}; y = 80 \text{ pg}; z = 80 \text{ pg}$
- 3** $x = 40 \text{ pg}; y = 80 \text{ pg}; z = 80 \text{ pg}$
- 4** $x = 80 \text{ pg}; y = 40 \text{ pg}; z = 40 \text{ pg}$

Question

If at the end of meiosis each daughter cell has four chromosomes, how many chromosomes would a diploid cell have in G₁ phase of cell cycle?

1 2

2 4

3 8

4 16

Question

If a meiospore has 20 picograms DNA then what was the DNA content in its meiocyte at G₁ and S phase respectively?

- 1** 20, 40
- 2** 40, 80
- 3** 20, 80
- 4** 40, 40

Question

If the initial amount of DNA is 2 C and number of chromosomes in the cell is 24. What would be the amount of DNA and number of chromosomes in same dividing cell in G₂ phase?

- 1** 2 C, 48
- 2** 4 C, 48
- 3** 4 C, 24
- 4** 2 C, 24

Question

What is the amount of DNA in metaphase stage of a meiocyte if a microspore of the same plant has 30 pg DNA?

- 1** 30 pg
- 2** 60 pg
- 3** 15 pg
- 4** 120 pg

Question

How many meiosis are required for the formation of 200 seeds in *Pisum sativum*?

- 1 200
- 2 250
- 3 300
- 4 400

Question

Suppose an onion root tip cell has 14 chromosomes and 10 pg DNA, what will be the number of chromosomes and amount of DNA present at G₂ phase of cell cycle?

- 1** 14 & 20 pg
- 2** 14 & 10 pg
- 3** 7 & 2.5 pg
- 4** 7 & 5 pg

Question

In a microspore, the number of chromosomes is 10 and DNA content is 20 pg. What is the number of chromosomes and DNA content in its meiocyte at G₁ stage?

- 1** 20, 20
- 2** 10, 40
- 3** 20, 40
- 4** 10, 20

Question

If the number of bivalents aligned on the equatorial plate of metaphase-I is 10. What will be the number of chromosomes in each haploid cell after meiosis II?

- 1** 5
- 2** 10
- 3** 15
- 4** 20

Question



Given below are two statements :

Statement-I: Chromosomes become gradually visible under light microscope during leptotene stage.

Statement-II: The beginning of diplotene stage is recognized by dissolution of synaptonemal complex.

In the light of the above statements, choose the correct answer from the options given below :

(2024)

- 1** Both Statement-I and Statement-II are true
- 2** Both Statement-I and Statement-II are false
- 3** Statement-I is true but Statement-II is false
- 4** Statement-I is false but Statement-II is true

Question

Match List I with List-II:

Choose the correct answer from the options given below:

(2024)

- 1** A-IV, B-II, C-III, D-I
- 2** A-I, B-II, C-IV, D-III
- 3** A-II, B-IV, C-I, D-III
- 4** A-IV, B-III, C-II, D-I

	List-I (Sub Phases of Prophase I)		List-II (Specific characters)
A.	Diakinesis	I.	Synaptonemal complex formation
B.	Pachytene	II.	Completion of terminalisation of chiasmata
C.	Zygotene	III.	Chromosomes look like thin threads
D.	Leptotene	IV.	Appearance of recombination nodules

Question

Following are the stages of cell division :

- A. Gap 2 phase
- B. Cytokinesis
- C. Synthesis phase
- D. Karyokinesis
- E. Gap 1 phase

Choose the correct sequence of stages from the options given below :

(2024)

- 1** C-E-D-A-B
- 2** E-B-D-A-C
- 3** B-D-E-A-C
- 4** E-C-A-D-B

Spindle fibers attach to kinetochores of chromosomes during

(2024)

- 1** Prophase
- 2** Metaphase
- 3** Anaphase
- 4** Telophase

Among eukaryotes, replication of DNA takes place in :

(2023)

- 1** S phase
- 2** G₁ phase
- 3** G₂ phase
- 4** M phase

Question



Which of the following stages of meiosis involves division of centromere? (2023)

- 1** Metaphase II
- 2** Anaphase II
- 3** Telophase
- 4** Metaphase I

Question



The process of appearance of recombination nodules occurs at which sub stage of prophase I in meiosis? (2023)

- 1** Pachytene
- 2** Diplotene
- 3** Diakinesis
- 4** Zygoten

Question

Match List - I with List – II

Choose the correct answer from the options given below.

(2023)

- 1** A-(iv); B-(ii); C-(i); D-(iii)
- 2** A-(iv); B-(i); C-(ii); D-(iii)
- 3** A-(ii); B-(iv); C-(i); D-(iii)
- 4** A-(iii); B-(ii); C-(iv); D-(i)

List-I		List-II	
A.	M phase	(i)	Proteins are synthesized
B.	G ₂ phase	(ii)	Inactive phase
C.	Quiescent stage	(iii)	Interval between mitosis and initiation of DNA replication
D.	G ₁ phase	(iv)	Equational division

Question

Which one of the following never occurs during mitotic cell division?

(2022)

- 1** Coiling and condensation of the chromatids
- 2** Spindle fibres attach to kinetochores of chromosomes
- 3** Movement of centrioles towards opposite poles
- 4** Pairing of homologous chromosomes

The appearance of recombination nodules on homologous chromosomes during meiosis characterizes : (2022)

- 1** Terminalization
- 2** Synaptonemal complex
- 3** Bivalent
- 4** Sites at which crossing over occurs

Regarding Meiosis, which of the statements is incorrect?

(2022)

- 1** Four haploid cells are formed at the end of Meiosis-II
- 2** There are two stages in Meiosis, Meiosis-I and II
- 3** DNA replication occurs in S phase of Meiosis-II
- 4** Pairing of homologous chromosomes and recombination occurs in Meiosis-I

Question

Select the incorrect statement with reference to mitosis:

(2022)

- 1** Splitting of centromere occurs at anaphase
- 2** All the chromosomes lie at the equator at metaphase
- 3** Spindle fibres attach to centromere of chromosomes
- 4** Chromosomes decondense at telophase

Question

Which of the following stages of meiosis involves division of centromere? (2021)

- 1** Metaphase II
- 2** Anaphase II
- 3** Telophase II
- 4** Metaphase I

Question

Match List - 1 with List – 2

Choose the correct answer from the options given below.

(2021)

1 A-(iv); B-(ii); C-(iii); D-(i)

2 A-(iv); B-(i); C-(ii); D-(iii)

3 A-(ii); B-(iv); C-(iii); D-(i)

4 A-(iii); B-(ii); C-(i); D-(iv)

	List-1		List-2
A.	S phase	(i)	Proteins are synthesized
B.	G ₂ phase	(ii)	Inactive phase
C.	Quiescent stage	(iii)	Interval between mitosis and initiation of DNA replication
D.	G ₁ phase	(iv)	DNA replication

Question



How many meiotic divisions are required to produce 101 seeds in a typical dicot plant?
(2021)

- 1** 16
- 2** 4
- 3** 32
- 4** 8

Question

Which stage of meiotic prophase shows terminalisation of chiasmata as its distinctive feature? (2021)

- 1** Zygotene
- 2** Diakinesis
- 3** Pachytene
- 4** Leptotene

The centriole undergoes duplication during:

(2021)

- 1** Prophase
- 2** Metaphase
- 3** G₂ phase
- 4** S-phase

Question

Match the following with respect to meiosis:
Select the correct option from the following:

(2020)

(1) (2) (3) (4)

- | | | | | |
|----------|-------|-------|-------|-------|
| 1 | (iv) | (iii) | (ii) | (i) |
| 2 | (i) | (ii) | (iv) | (iii) |
| 3 | (ii) | (iv) | (iii) | (i) |
| 4 | (iii) | (iv) | (i) | (ii) |

	Column - I		Column - II
1.	Zygotene	(i)	Terminalization
2.	Pachytene	(ii)	Chiasmata
3.	Diplotene	(iii)	Crossing over
4.	Diakinesis	(iv)	Synapsis

Question

Some dividing cells exit the cell cycle and enter vegetative inactive stage. This is called quiescent stage (G_0). This process occurs at the end of: (2020)

- 1** G_1 phase
- 2** S phase
- 3** G_2 phase
- 4** M phase

Question

In a mitotic cycle, the correct sequence of phases is

(2020 - Covid)

- 1** G_1, S, G_2, M
- 2** M, G_1, G_2, S
- 3** G_1, G_2, S, M
- 4** S, G_1, G_2, M

Attachment of spindle fibers to kinetochores of chromosomes becomes evident in :
(2020 - Covid)

- 1** Telophase
- 2** Prophase
- 3** Metaphase
- 4** Anaphase

Question

Match the following events that occur in their respective phases of cell cycle and select the correct option: (2020 - Covid)

- | | | | | |
|---|-------|-------|-------|-------|
| | (1) | (2) | (3) | (4) |
| 1 | (iii) | (iv) | (i) | (ii) |
| 2 | (iv) | (i) | (ii) | (iii) |
| 3 | (i) | (ii) | (iii) | (iv) |
| 4 | (ii) | (iii) | (iv) | (i) |

1.	G ₁ phase	(i)	Cell grows and organelle duplication
2.	S phase	(ii)	DNA replication and chromosome duplication
3.	G ₂ phase	(iii)	Cytoplasmic growth
4.	Metaphase in M-phase	(iv)	Alignment of chromosomes

Question

Identify the correct statement with regard to G₁ phase (Gap 1) of interphase. (2020)

- 1** Reorganisation of all cell components takes place.
- 2** Cell is metabolically active, grows but does not replicate its DNA.
- 3** Nuclear division takes place.
- 4** DNA synthesis or replication takes place.

Question

Dissolution of the synaptonemal complex occurs during:

(2020)

- 1** Zygote
- 2** Diplotene
- 3** Leptotene
- 4** Pachytene

Question

During Meiosis I, in which stage synapsis takes place?

(2020 - Covid)

- 1** Zygote
- 2** Diplotene
- 3** Leptotene
- 4** Pachytene

Question

The correct sequence of phases of cell cycle is

(2019)

- 1** $M \rightarrow G_1 \rightarrow G_2 \rightarrow S$
- 2** $G_1 \rightarrow G_2 \rightarrow S \rightarrow M$
- 3** $S \rightarrow G_1 \rightarrow G_2 \rightarrow M$
- 4** $G_1 \rightarrow S \rightarrow G_2 \rightarrow M$

Cell in G₀ phase

(2019)

- 1** Exit the cell cycle
- 2** Enter the cell cycle
- 3** Suspend the cell cycle
- 4** Terminate the cell cycle

Question



The stage during which separation of the paired homologous chromosomes begins is
(2018)

- 1** Pachytene
- 2** Diplotene
- 3** Diakinesis
- 4** Zygote

Question

Anaphase promoting complex (APC) is a protein degradation machinery necessary for proper mitosis of animal cells. If APC is defective in a human cell, which of the following is expected to occur? (2017 – Delhi)

- 1** Chromosomes will not condense
- 2** Chromosomes will be fragmented
- 3** Chromosomes will not segregate
- 4** Recombination of chromosome arms will occur

Question

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

(2017 – Delhi)

- 1** Condensation → Nuclear membrane disassembly → Crossing over → Segregation → Telophase
- 2** Condensation → Nuclear membrane disassembly → Arrangement at equator → Centromere division → Segregation → Telophase
- 3** Condensation → Crossing over → Nuclear membrane disassembly → Segregation → Telophase
- 4** Condensation → Arrangement at equator → Centromere division → Segregation → Telophase

DNA replication in bacteria occurs:

(2017 - Delhi)

- 1** During S-phase
- 2** Within nucleolus
- 3** Prior to fission
- 4** Just before transcription

Question

Which of the following statements is correct with respect to cell cycle? (2017 - Gujarat)

- 1** DNA content of cell remains constant during entire cell cycle
- 2** A cell in G_1 phase has double the amount of DNA than a cell in G_2 phase
- 3** Each chromosome has two chromatids in G_1 phase
- 4** Nerve cells in adult human are in G_0 state

Question

At what phase of meiosis homologous chromosomes are separated? (2017 - Gujarat)

- 1** Anaphase II
- 2** Prophase I
- 3** Prophase II
- 4** Anaphase I

Question

When cell has stalled DNA replication fork, which checkpoint should be predominantly activated? (2016 - II)

- 1** M
- 2** Both G_2 / M and M
- 3** G_1 / S
- 4** G_2 / M

Question

During cell growth, DNA synthesis takes place in:

(2016 - II)

- 1** G₂ phase
- 2** M phase
- 3** S phase
- 4** G₁ phase

Question

Match the stages of meiosis in Column-I to their characteristic features in Column-II and select the correct option using the codes given below: (2016 - II)

- 1** A-(ii); B-(iv); C-(iii); D-(i)
- 2** A-(iv); B-(iii); C-(ii); D-(i)
- 3** A-(iii); B-(iv); C-(ii); D-(i)
- 4** A-(i); B-(iv); C-(ii); D-(iii)

	Column - I		Column - II
A.	Pachytene	(i)	Pairing of homologous chromosomes
B.	Metaphase-I	(ii)	Terminalisation of chiasmata
C.	Diakinesis	(iii)	Crossing over takes place
D.	Zygotene	(iv)	Chromosomes align at equatorial plate

Question

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

(2016 - I)

1 Spindle fibres

2 Disappearance of nucleolus

3 Chromosome movement

4 Synapsis

Question

In meiosis, crossing over is initiated at:

(2016 - I)

- 1** Pachytene
- 2** Leptotene
- 3** Zygote
- 4** Diplotene

Question

Select the correct option:

(2015)

- 1** A-(i); B-(ii); C-(iii); D-(iv)
- 2** A-(ii); B-(iii); C-(iv); D-(v)
- 3** A-(ii); B-(i); C-(iii); D-(iv)
- 4** A-(ii); B-(iii); C-(v); D-(iv)

	Column - I		Column - II
A.	Synapsis aligns the homologous chromosomes	(i)	Anaphase-II
B.	Synthesis of RNA and protein	(ii)	Zygotene
C.	Action of enzyme recombinase	(iii)	G ₂ -phase
D.	Centromeres do not separate but chromatids move towards opposite poles	(iv)	Anaphase-I
		(v)	Pachytene

Question

A somatic cell that has just completed the S phase of its cell cycle, as compared to gamete of the same species, has: (2015-Re)

- 1** Twice the number of chromosomes and four times the amount of DNA
- 2** Four times the number of chromosomes and twice the amount of DNA
- 3** Twice the number of chromosomes and twice the amount of DNA
- 4** Same number of chromosomes but twice the amount of DNA

Question

Arrange the following events of meiosis in correct sequence:

- A. Crossing over
- B. Synapsis
- C. Terminalisation of chiasmata
- D. Disappearance of nucleolus

(2015-Re)

1 (B), (A), (C), (D)

2 (A), (B), (C), (D)

3 (B), (C), (D), (A)

4 (B), (A), (D), (C)

Question

During which phase(s) of cell cycle, amount of DNA in a cell remains at 4C level if the initial amount is denoted as 2C ? (2014)

- 1** G_2 and M
- 2** G_0 and G_1
- 3** G_1 and S
- 4** Only G_2

In 'S' phase of the cell cycle:

(2014)

- 1** Amount of DNA is reduced to half in each cell
- 2** Amount of DNA doubles in each cell
- 3** Amount of DNA remains same in each cell
- 4** Chromosome number is increased

Question



The enzyme recombinase is required at which stage of meiosis?

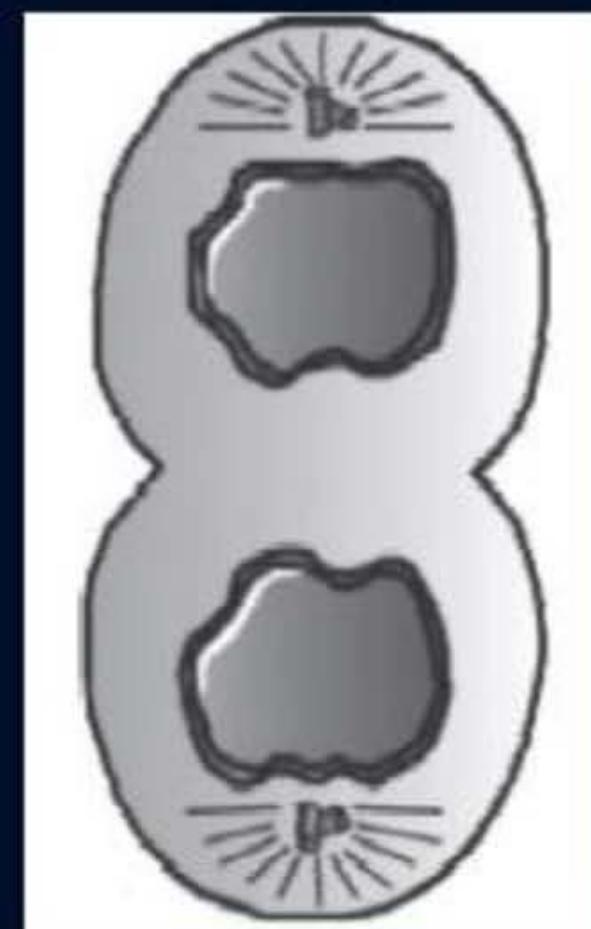
(2014)

- 1** Diakinesis
- 2** Pachytene
- 3** Zygote
- 4** Diplotene

Question

A stage in cell division is shown in the figure. Select the answer which gives correct identification of the stage with its characteristics: (2013)

1	Telophase	Endoplasmic reticulum and nucleolus not reformed yet.
2	Telophase	Nuclear envelope reforms, Golgi complex reforms.
3	Late Anaphase	Chromosomes move away from equatorial plate, Golgi complex not present.
4	Cytokinesis	Cell plate formed, mitochondria distributed between two daughter cells.



The complex formed by a pair of synapsed homologous chromosomes is called: (2013)

- 1** Axoneme
- 2** Equatorial plate
- 3** Kinetochores
- 4** Bivalent

Question



Assertion: Cell cycle ensures correct division and formation of progeny cells containing intact genomes. C

Reason: All the processes of cell cycle which are cell division, DNA replication and cell growth takes place in a coordinated manner. C

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Identify the correct statement with regard to the G₁ phase of interphase.

- 1 DNA synthesis or replication takes place X S
- 2 Reorganization of all cell components takes place X M
- 3 Cell is metabolically active, grows but does not replicate its DNA
- 4 Nuclear division takes place M X

Cells in G_0 phase

- 1 Terminate the cell cycle
 - 2 Exit the cell cycle
 - 3 Enter the cell cycle
 - 4 Suspend the cell cycle
- ✓ New NCERT*
- ✓ Old NCERT*

Question

Mitosis

A somatic cell that has just completed S phase of cell cycle, as compared to gamete of the same species has

mitosis

$G_1: 2C$
 $S: 4C$ ✓
 $G_2: 4C$

$G_1: 2C$
 $S: 4C$
 $G_2: 4C$
 $M-I: 2C$
 $M-II: 1C$ ✓



- 1 Twice the number of chromosomes and 4 times the amount of DNA.
- 2 Four time the number of chromosomes and twice the amount of DNA
- 3 Twice the number of chromosomes and twice the amount of DNA
- 4 Same number of chromosomes but twice the amount of DNA.

Question

How many statements are correct?

- (a) Cycles of growth and division allow a single cell to form a structure consisting of millions of cells ✓
- (b) Cytoplasmic increase is a continuous process. ✓
- (c) DNA synthesis occurs during one specific stage of cell cycle. ✓
- (d) The replicated chromosomes are distributed to daughter nuclei by a complex series of events during cell division. ✓
- (e) Duration of the cell cycle is approximately the same for all organisms.

1 5

3 3

2 4
4 2

Question

Match the following

- | | | |
|-----------------|----|-----------------------|
| a. Karyokinesis | 1. | Division of cytoplasm |
| b. Cytokinesis. | 2. | Post mitotic phase |
| c. Gap 1 phase. | 3. | Division of nucleus |
| d. S phase. | 4. | Pre mitotic phase |
| e. Gap 2 phase. | 5. | Centriole duplication |
| f. Yeast. | 6. | 24 hours |
| g. Human cells. | 7. | 90 minutes |

1

a-3, b-1, c-2, d-5, e-4, f-7, g-6

3

a-7, b-1, c-2, d-3, e-5, f-4, g-6

2

a-3, b-1, c-2, d-6, e-5, f-4, g-7

4

a-6, b-7, c-5, d-4, e-3, f-2, g-1

Choose the incorrect statements

- 1 M phase represents the phase when the actual cell division occurs C
- 2 Interphase represents the phase between two successive M phases C
- 3 Actual division lasts only for 2 hours in a human cell.
- 4 Interphase lasts more than 95 percent of the duration of the cell cycle.

Question



Assertion: Interphase is called the resting stage.

(C)

Reason: Interphase is the time during which a cell is preparing for division by undergoing both cell growth and DNA replication in an orderly manner.

(C)

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

$G_1 - S - G_2 \xrightarrow{M} G_1 - S \xrightarrow{G_1 \rightarrow S} G_2 \xrightarrow{M}$

Mark the incorrect statement

- (a) The sequence of events by which a cell duplicates its genome, synthesizes the other constituents of cell and eventually divides into two daughter cells is termed as cell cycle
- (b) Cell cycle is under genetic control
- (c) G_1 phase corresponds to the interval between mitosis and initiation of DNA replication
- (d) DNA replication begins in the nucleus and the centriole duplicates in cytoplasm
- (e) During the G_2 phase, proteins are synthesized for mitosis while cell growth continues.

1

None is incorrect

3

(c) is incorrect

2

(a) and (e) are incorrect

4

(c) and (d) are incorrect

5

NONE

Question

Which of the following is not true about the S phase?

- 1 Synthesis phase marks the period during which DNA synthesis takes place C
- 2 The amount of DNA per cell doubles C
- 3 If the initial amount is denoted as $2C$, then it increases to $4C$ C
- 4 If the cell has $2n$ number of chromosomes at G_1 , they become $4n$ after S phase. ~~2n~~

Question

In somatic cell cycle

- 1 Histone proteins are synthesized in the ~~S~~ phase.
- 2 A short interphase is followed by long mitotic phase X.
- 3 In G_1 phase DNA content is double the amount of DNA present in original cell X
- 4 In only the G_2 phase, the amount of DNA remains at 4C level if the initial amount is denoted as 2C.

2C
 $G_1 : 2C$
 $S : 4C$
 $G_2 : 4C$
 $M : 2C$

Question

Assertion: M phase is the most dramatic phase of cell cycle.

Reason: M phase exhibits major reorganization of virtually all the components of cells.

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Assertion: Mitosis is also called equational division.

Reason: Mitosis is the division of a parent cell into identical daughter cells having the same amount of DNA as in the parent cell.

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

C

Choose the incorrect statement

- 1 Cells that do not divide further exit G₁ phase to enter an inactive stage called quiescent stage
- 2 Cells in the G₀ phase are not metabolically active
- 3 Cells in the G₀ phase no longer proliferate until called on to do so C
- 4 Heart cells do not exhibit division and are in G₀ phase C

Question

Which is true about Prophase

- (a) Prophase is marked by initiation of condensation of chromosomal material ✓
- (b) Centriole begins to moves towards the opposite poles ✓
- (c) Chromosomal material condenses to form compact mitotic chromosome ✓
- (d) Initiation of assembly of mitotic spindle, the microtubules, the proteinaceous components of cell cytoplasm helps in the condensation X.
- (e) Cells in the ~~beginning~~ of prophase, do not show Golgi complex, ER, nucleolus and nuclear envelope late.
- (f) Chromosomes are seen to be composed of single chromatid X

- 1 e and f are incorrect
- 3 a, b, e are incorrect

- 2 Only d is correct
- 4 e, f and d are incorrect

5 NONE

Question



Assertion: In mitotic metaphase, morphology of chromosomes can be studied easily.

Reason: Condensation of chromosomes is completed in this stage.

1

If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

2

If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

3

If Assertion is true but Reason is false.

4

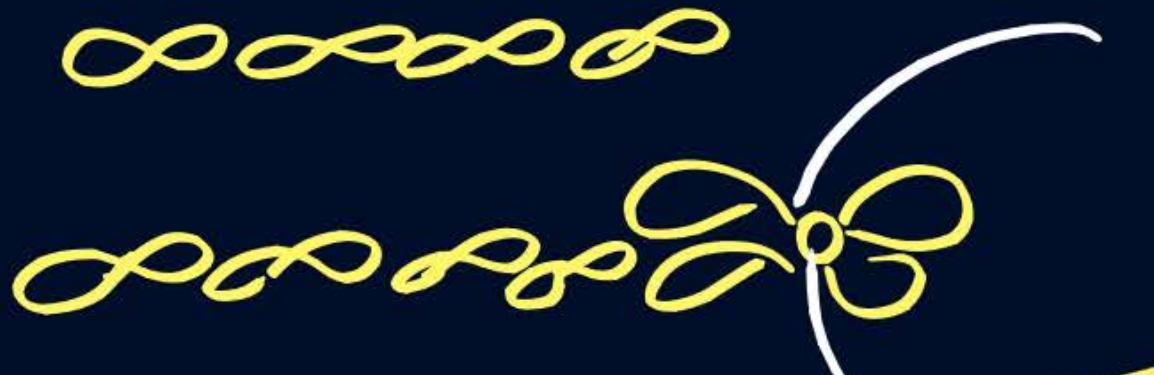
If both Assertion and Reason are false.

Question

Which of the following is incorrect?

- 1 The complete disintegration of the nuclear envelope marks the start of the first phase of mitosis.
- 2 Metaphase chromosomes are made of two sister chromatids held together by the centromere.
- 3 Small disc shaped structures at the surface of centromeres are called kinetochores.
- 4 Spindle fibers attach to kinetochores of chromosomes

Question



Which is not true about metaphase?

- (a) The chromosome comes to lie at the equator during metaphase.
- (b) A chromosome is joined by ~~only one~~^{two} spindle fiber from one pole. X
- (c) The plane of alignment of the chromosomes at metaphase is referred to as metaphasic plate. → double

(d) Mitotic anaphase and metaphase have the same number of chromosomes. X.

- (e) Mitotic anaphase contains half the number of chromatids as compared to metaphase.

same,

- 1 b, d and e
- 3 Only b

- 2 Only d and e
- 4 Only b and d

Question

Find the incorrect statement

- (a) During anaphase, centromere splits and chromatids separate.
- (b) During anaphase, chromatids move to opposite poles
- (c) During anaphase, as each chromosome moves away from the equatorial plate, the centromere of each chromosome is towards the pole and arms of chromosomes trail behind.
- (d) Anaphase is the longest phase of prophase

1 All are correct

3 c and d is incorrect

2 Only d is incorrect

4 b and c are incorrect

Question

Securin protein

Anaphase Promoting Complex is a protein degradation machinery necessary for proper mitosis of animal cells. If APC is defective in a human cell, which of the following is expected to occur?

- 1 Chromosome will be fragmented
- 2 Chromosome will not segregate
- 3 Recombination of chromosome arms will occur
- 4 Chromoplasts will not condense

NEET
out of
NCERT

Question

P
W

Which one of the following precedes reformation of the nuclear envelope during M phase of the cell cycle?

TEM

Check

Wait

Telophase

Latz

- 1 Decondensation from chromosomes and reassembly of the nuclear lamina
- 2 Transcription from chromosomes and reassembly of the nuclear lamina
- 3 Formation of the contractile ring and formation of the phragmoplast / cell plate
- 4 Formation of contractile ring and transcription from chromosomes

animals

plant

cell
plate

Question

Assertion: Telophase is also called reverse prophase.

Reason: In telophase, all the changes that appear during prophase get reversed.

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Chrom → chromatin
Spindle fibre

Question

Which of the following is not true about Telophase?

- (a) Chromosomes cluster at opposite spindle poles and their identity is lost as discrete elements
- (b) Nuclear envelope assemble around chromosomes clusters
- (c) Nucleolus, ER and Golgi complex is reformed.

- 1 d and a
- 2 d and b
- 3 d and c
- 4 All are correct

Question

Assertion: In animal cells, the cytokinesis is marked by the appearance of furrow in the plasma membrane.

Reason: In plant cells, the formation of the new cell wall starts with the formation of a simple precursor called a cell plate.

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Which of the following is incorrect?

- (a) All plant cells follow centrifugal cytokinesis by cell plate formation
- (b) All animal cells follow centripetal cytokinesis through cell furrow formation
- (c) During cytoplasmic division, organelles like mitochondria and plastids get distributed between the two daughter cells.

~~(d) Mitotic divisions in the apical and lateral cambium result in discontinuous growth of plants throughout their life.~~

~~(e) Mitosis can only take place in diploid cells.~~ ↳ ⑤

1 Only e

3 c, d and e

2 e and d

4 All are incorrect

Question

Assertion: Syncytium is seen in Liquid endosperm in coconut ✓

Reason: Karyokinesis is not followed by cytokinesis. ✓

1

If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

2

If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

3

If Assertion is true but Reason is false.

4

If both Assertion and Reason are false.

Assertion: Colchicine is an inhibitory chemical.

Reason: Colchicine prevents the spindle formation in mitosis.

- 1** If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2** If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3** If Assertion is true but Reason is false.
- 4** If both Assertion and Reason are false.

Question

The difference between mitosis and meiosis is

- (a) Two cell divisions take place
- (b) DNA replicates during interphase X
- (c) Haploid cells are produced from diploid cells

- 1 a only
- 2 b only
- 3 c only
- 4 a and c

Meiosis involves

- 1** two nuclear divisions with chromosomes dividing once
- 2** two nuclear divisions with chromosomes dividing twice
- 3** two nuclear divisions with chromosomes dividing four times
- 4** one nuclear division with chromosomes dividing once.

Question

Assertion: In meiosis, the daughter cells differ from the parent cell as well as amongst themselves.

(C)

Reason: Segregation, independent assortment and crossing over takes place in meiosis.

(C)

- 1 If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2 If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3 If Assertion is true but Reason is false.
- 4 If both Assertion and Reason are false.

Question

Assertion: Meiosis is known as reductional division.

Reason: Meiosis reduces the chromosome number by half in daughter cells.

1

If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

2

If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

3

If Assertion is true but Reason is false.

4

If both Assertion and Reason are false.

Which of the following is true about mitosis?

- 1** Mitosis does not occur in lower plants and social insects
- 2** The growth of multicellular organisms is due to mitosis
- 3** Mitosis helps in restoring the nuclei-cytoplasmic ratio.
- 4** The cells in the upper layer of epidermis, cells of the lining of the gut and blood cells show mitosis

Question

Which of the following is incorrect about diakinesis?

- 1 It is the final stage of prophase 1 of meiosis 1 and represents transition to metaphase
- 2 During this stage, chromosomes are not fully condensed
- 3 During this stage, meiotic spindle is assembled to prepare homologous chromosomes for separation
- 4 By end of diakinesis, nucleolus disappears and nuclear membrane breaks down

Question

Match the following with respect to meiosis

- A. Zygotene.  1.
- B. Pachytene.  2.
- C. Diplotene.  3.
- D. Diakinesis.  4.

Select the correct option

- 1** A-3, B-4, C-1, D-2
- 2** A-4, B-3, C-2, D-1
- 3** A-1, B-2, C-4, D-3
- 4** A-2, B-4, C-3, D-1

Question

Which of the following is not correct?

- 1 Crossing over takes place between non sister chromatids of homologous chromosomes at the Pachytene stage of prophase1. C
- 2 The stage during which separation of the paired homologous chromosomes begins is diplotene C
- 3 The enzyme recombinase is required during zygotene stage of meiosis
- 4 The complex formed by a pair of synapsed homologous chromosomes is called bivalent. /Techma C

Question

Select the mismatched pair

- 1 Synapsis align homologous chromosomes: Zygotene
- 2 Synthesis of RNA and protein: G2 Phase
- 3 Centromeres do not separate but chromatids move to opposite poles : Anaphase
- 4 Centromere split and chromatids separate: Anaphase I of meiosis 1

③ l(u)
incorrect.

Question

Arrange the following events of meiosis in correct sequence

- (a) Crossing onder $\longrightarrow P$
- (b) Synapsis $\longrightarrow Z$
- (c) Terminalisation of chiasmata \rightarrow
- (d) Disappearance of nucleolus

1 a, b, c, d

2 b, c, d, a

3 b, a, d, c

4 b, a, c, d

Question

Which of the following is incorrect

- (a) The beginning of diplotene is recognised by dissolution of synaptonemal complex
- (b) In oocytes of some vertebrates, diplotene can last for months or years
- (c) X shaped structures called chiasmata are seen in diplotene
- (d) Chiasmata represents the site of crossing over.

- 1 All are correct
- 2 d and b are incorrect
- 3 a, d and b are incorrect
- 4 Only b is incorrect

Question

Which of the following is incorrect?

- (a) During pachytene, the chromosomes become gradually visible under the light microscope.
- (b) The compaction of chromosomes continues throughout Leptotene ✓
- (c) The complex formed by pair of synapsed chromosomes is called tetrad ✓
- (d) Prophase I of meiosis is much more complex than mitotic prophase. ✓

- 1 b and d
- 2 Only a
- 3 a, b and d
- 4 c

Question

How many statements are correct?

- (a) Recombination between homologous chromosomes is completed at the end of pachytene ✓
- (b) Most of the organelle duplication occurs in G1 phase ✓
- (c) Meiosis 2 is similar to mitosis ✓
- (d) During zygotene, chromosomes starts pairing together and this process of association is called Synapsis ✓
- (e) The first two stages of Prophase I are relatively short lived as compared to Pachytene ✓
- (f) Crossing over leads to recombination of genetic material on the two chromosomes ✓

1

5

3

7

2

6

4

8

E

NONE

Question

In.

Which of the following is correct about pachytene?

- 1 During this stage, bivalent chromosomes clearly appear as tetrads C
- 2 The stage is characterized by appearance of recombination nodules C
- 3 Crossing over takes place during pachytene which is an enzyme mediated process C
- 4 Electron micrograph of this stage indicate that chromosomes synapsis is accompanied by the formation of complex structure called synaptonemal complex IC.

Question

Which of the following is ^{not} true about Telophase I of meiosis?

- 1 The nuclear membrane and nucleolus reappear in this stage. C
- 2 The chromosomes do undergo some degree of dispersion C
- 3 The chromosomes ^{do not} reach the extremely extended state of interphase nucleus IC.
- 4 Telophase I is followed by cytokinesis

IN Telop-I : karyokinesis completed followed
By cytokinesis

Assertion: The stage between two meiotic divisions is called interkinesis.

Reason: Interkinesis is generally short lived.

- 1** If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2** If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3** If Assertion is true but Reason is false.
- 4** If both Assertion and Reason are false.

Assertion: A diploid zygote is formed after fertilization.

Reason: Meiosis ensures production of haploid phase in the life cycle of sexually reproducing organisms.

- 1** If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2** If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3** If Assertion is true but Reason is false.
- 4** If both Assertion and Reason are false.

Question



Which statement best explains the evolutionary advantage of meiosis?

- 1** Meiosis is necessary for sexual reproduction
- 2** Genetic recombinations are possible from generation to generation
- 3** Meiosis alternates with mitosis from generation to generation
- 4** The same genetic system is passed on from generation to generation

Assertion: Mitosis maintains genetic similarity of somatic cells.

Reason: Chromosomes do not undergo crossing over.

- 1** If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- 2** If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- 3** If Assertion is true but Reason is false.
- 4** If both Assertion and Reason are false.

Question



Which of the following statements is incorrect?

- 1** Meiosis is the mechanism by which conservation of specific chromosome number of each species is achieved in sexually reproducing organisms.
- 2** Variations are important for the process of evolution.
- 3** Cell growth results in disturbing the ratio between the nucleus and cytoplasm.
- 4** During anaphase 2, sister chromatids do not separate.

Question

Which of the following is not correct

- (a) Four haploid cells are formed at the end of meiosis
- (b) Any sexually reproducing organism starts its life cycle from single celled zygote
- (c) In contrast to mitosis, meiosis occurs in diploid cells, which are destined to form gametes
- (d) During metaphase-2, chromosomes align at equator and the microtubules from opposite poles of the spindle get attached to kinetochores of sister chromatids.

1 All are correct

2 b and d are incorrect

3 Only b

4 Only d

Question

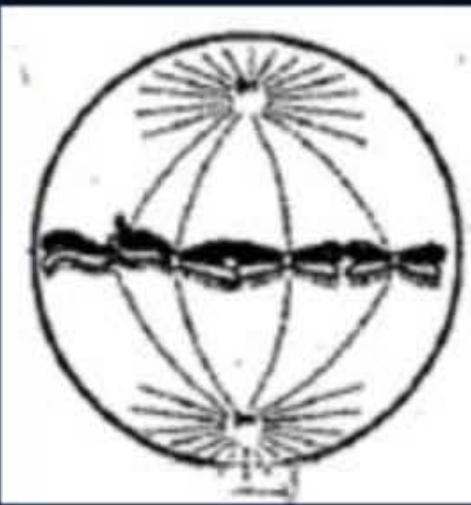
A stage in cell division is shown in figure. Select the answer which gives correct identification of the stage with the characteristics



- 1** Cytokinesis - cell plate formed, mitochondria distributed between two daughter cells.
- 2** Telophase- ER and nucleolus not reformed yet
- 3** Telophase- Nuclear envelope and Golgi complex reformed
- 4** Late anaphase- Chromosomes move away and Golgi not present

Question

A stage of mitosis is shown in the diagram. Which stage is it?



- 1** Metaphase : Spindle fibers attached to kinetochore, centromere split and chromatids separate
- 2** Metaphase: Chromosomes moved to the spindle equator.
- 3** Anaphase: Centromere split and chromatids separate and move away
- 4** Late prophase: Chromosomes move to spindle equator.

Question

Which stages of cell division do the following figures A and B represent respectively?

- 1** A- Prophase B-Anaphase
- 2** A-Late anaphase B-Prophase
- 3** A-Telophase B-Metaphase
- 4** A-Metaphase B-Telophase



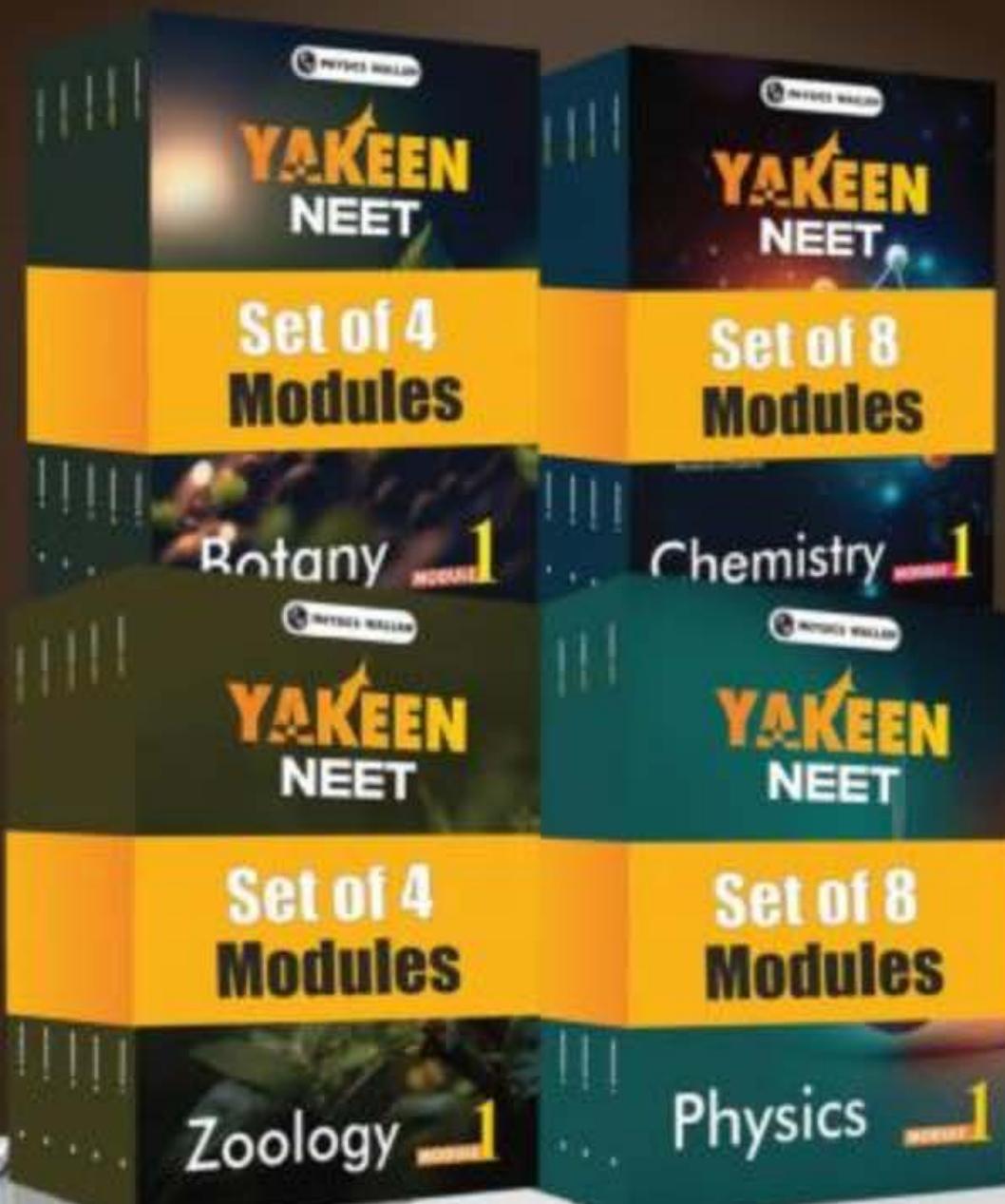
Fig.A



B

Fig.B

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