

Question no. 91

Which of the following is the unit of productivity of anecosystem?

(1) ~~KCal m⁻² yr⁻¹~~

(2) gm⁻²

(3) KCal m⁻²

(4) KCal m⁻³

1

Question no. 92

The first menstruation is called:

- (1) Ovulation
- (2) Menopause
- (3) Menarche
- (4) Diapause



Start
of
Puberty = Menstrual
Cycle
1st = Menarche
Last = Menopause.

Question no. 93

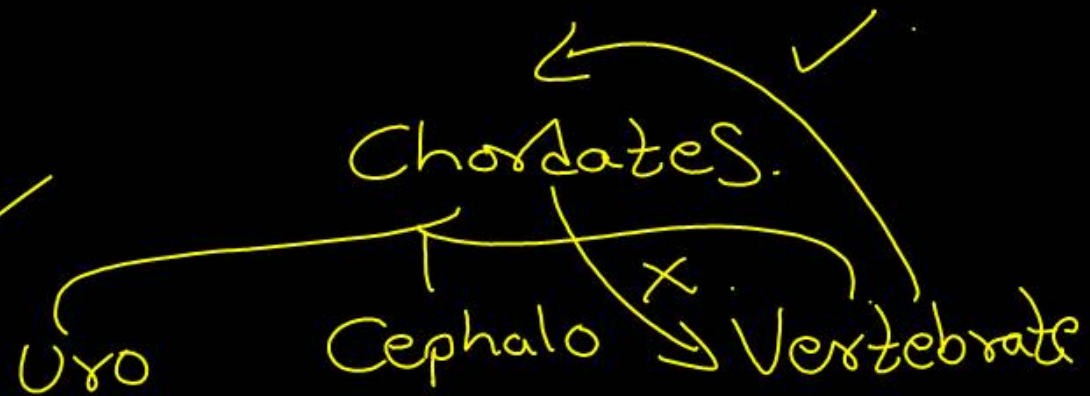
Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A): All vertebrates are chordates but all chordates are not vertebrates.

Reason (R): The members of subphylum vertebrata possess notochord during the embryonic period; the notochord is replaced by a cartilaginous or bony vertebral column in adults.

Choose the correct answer:

- (1) A is false but R is true
- (2) Both A and R are true and R is the correct explanation of A
- (3) Both A and R are true but R is not the correct explanation of A
- (4) A is true but R is false



2

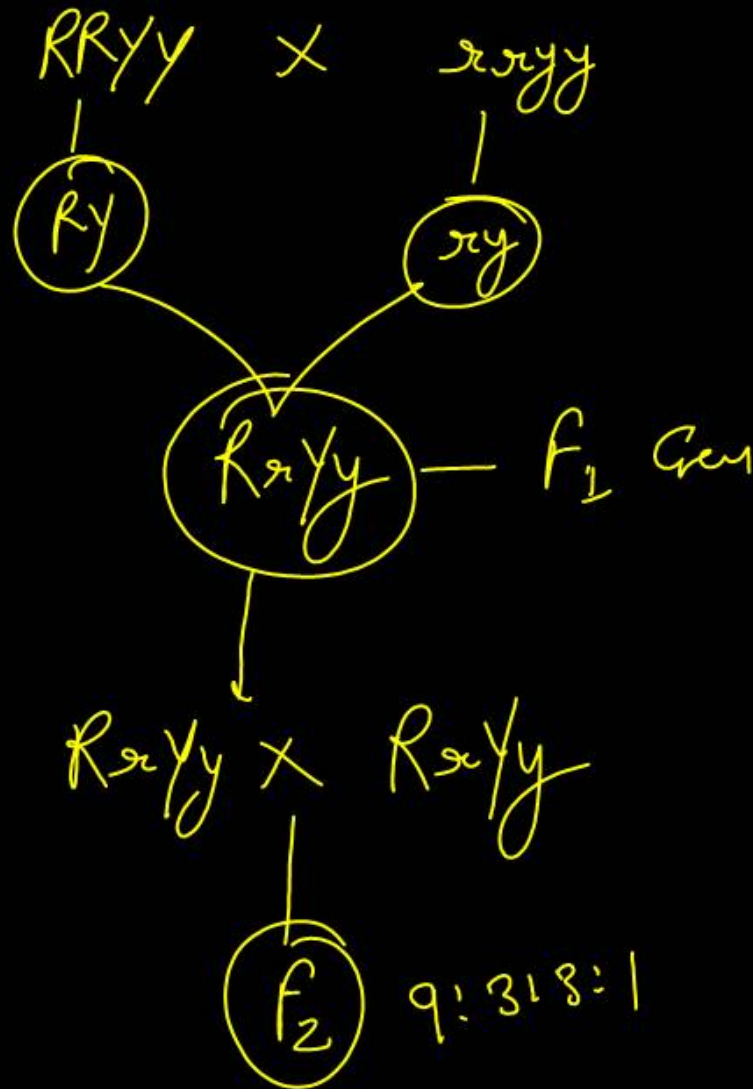
Question no. 94

Ry Ry

Genes R and Y follow independent assortment. If RRYY produce round yellow seeds and rryy produce wrinkled green seeds, what will be the phenotypic ratio of the F₂ generation?

- (1) 9 : 7
- (2) 1 : 2 : 1
- (3) 3 : 1
- (4) 9 : 3 : 3 : 1

4



Question no. 95

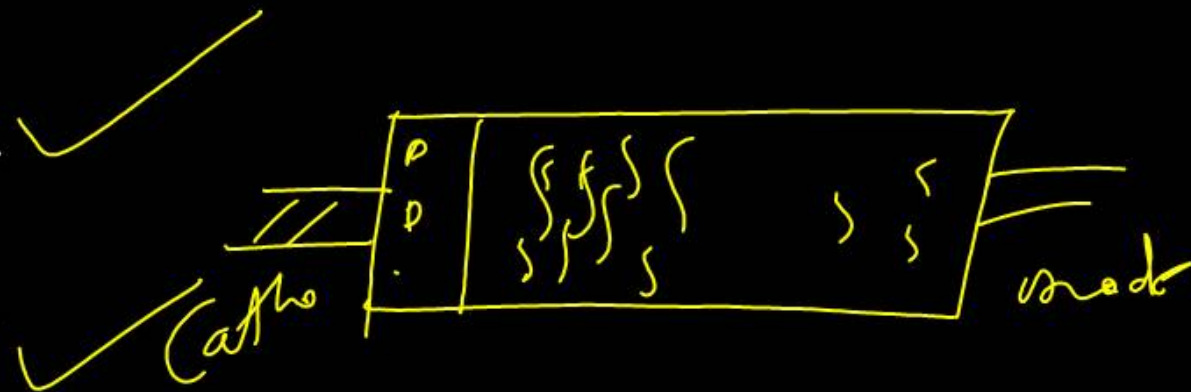
Given below are two statements:

Statement I: The DNA fragments extracted from gel electrophoresis can be used in construction of recombinant DNA.

Statement II: Smaller-size DNA fragments are observed near anode while larger fragments are found near the wells in an agarose gel.

Choose the most appropriate answer:

- (1) Statement I is ~~incorrect~~ but Statement II is 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



2

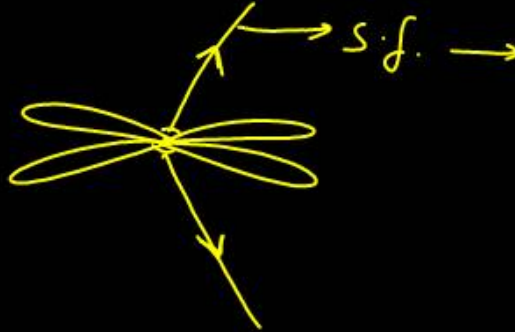
Question no. 96

What is the main function of the spindle fibers during mitosis?

- (1) To regulate cell growth ✗
- (2) To separate the chromosomes ✓
- (3) To synthesize new DNA ✗
- (4) To repair damaged DNA ✗

2

CELL DIVISION



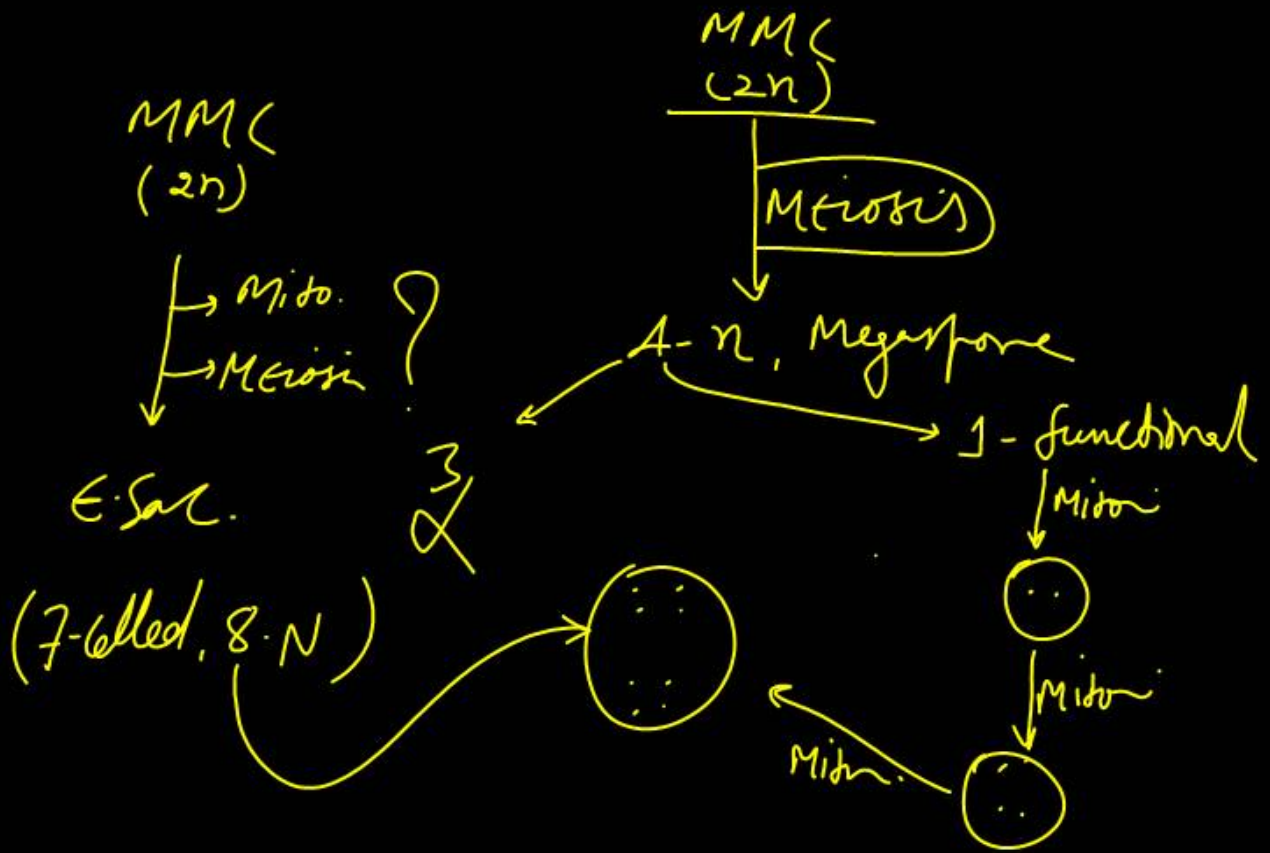
Question no. 97

How many meiotic and mitotic divisions need to occur for the development of a mature female gametophyte (← SAC) from the megaspore mother cell in an angiosperm plant?

- (1) No meiosis and 2 mitosis
- (2) 2 meiosis and 3 mitosis
- (3) 1 meiosis and 2 mitosis
- (4) 1 meiosis and 3 mitosis

SRFAP

4

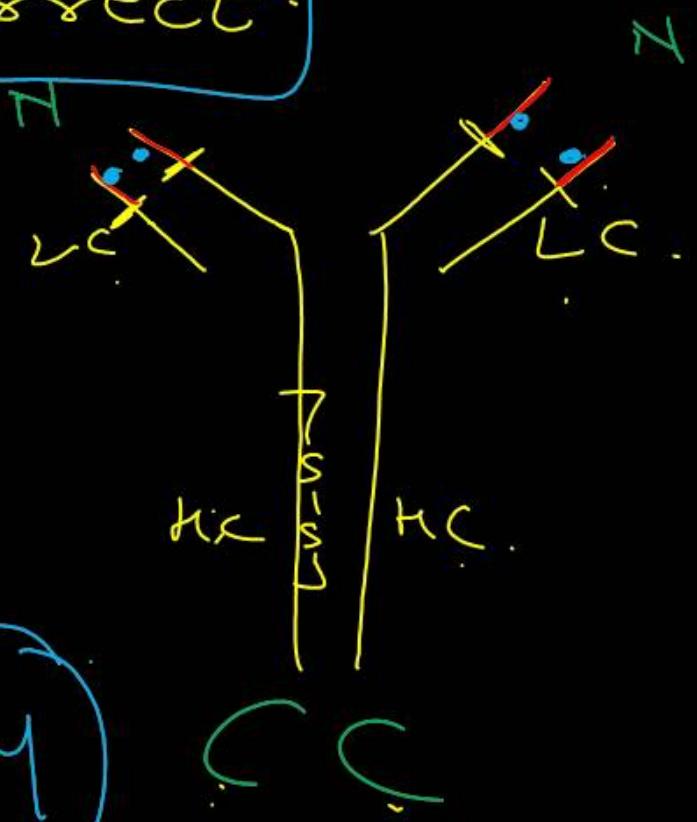


Question no. 98

Identify the statement that is NOT correct.

- (1) Constant region of heavy and light chains are located at C-terminus of antibody molecules
- (2) Each antibody has two light and two heavy chains
- (3) The heavy and light chains are held together by disulfide bonds
- (4) Antigen binding site is located at C-terminal region of antibody molecules

Incorrect



4

Question no. 99

Consider the following:

meiosis

- A. The reductive division for the human female gametogenesis starts earlier than that of the male gametogenesis. ✓
- B. The gap between the first meiotic division and the second meiotic division is much shorter for males compared to females. ✓
- C. The first polar body is associated with the formation of the primary oocyte. ✗
- D. Luteinizing Hormone (LH) surge leads to disintegration of the endometrium and onset of menstrual bleeding. ✗

Female = Fetal life

Male = Puberty

2

Choose the correct answer:

- (1) B and C are true
- (2) A and B are true ✓
- (3) A and C are true
- (4) B and D are true

Question no. 100

Given below are two statements:

Assertion (A): Cells of the tapetum possess dense cytoplasm and generally have more than one nucleus.

Reason (R): Presence of more than one nucleus in the tapetum increases the efficiency of nourishing the developing microspore mother cells.

→ Pollen grains

Choose the most appropriate answer:

- (1) A is ~~false~~ but R is true
- (2) Both A and R are ~~true~~ and R is the correct explanation of A
- (3) Both A and R are ~~true~~ but R is not the correct explanation of A
- (4) A is true but R is false

4

Question no. 101

The blue and white selectable markers have been developed which differentiate recombinant colonies from non-recombinant colonies on the basis of their ability to produce colour in the presence of a chromogenic substrate.

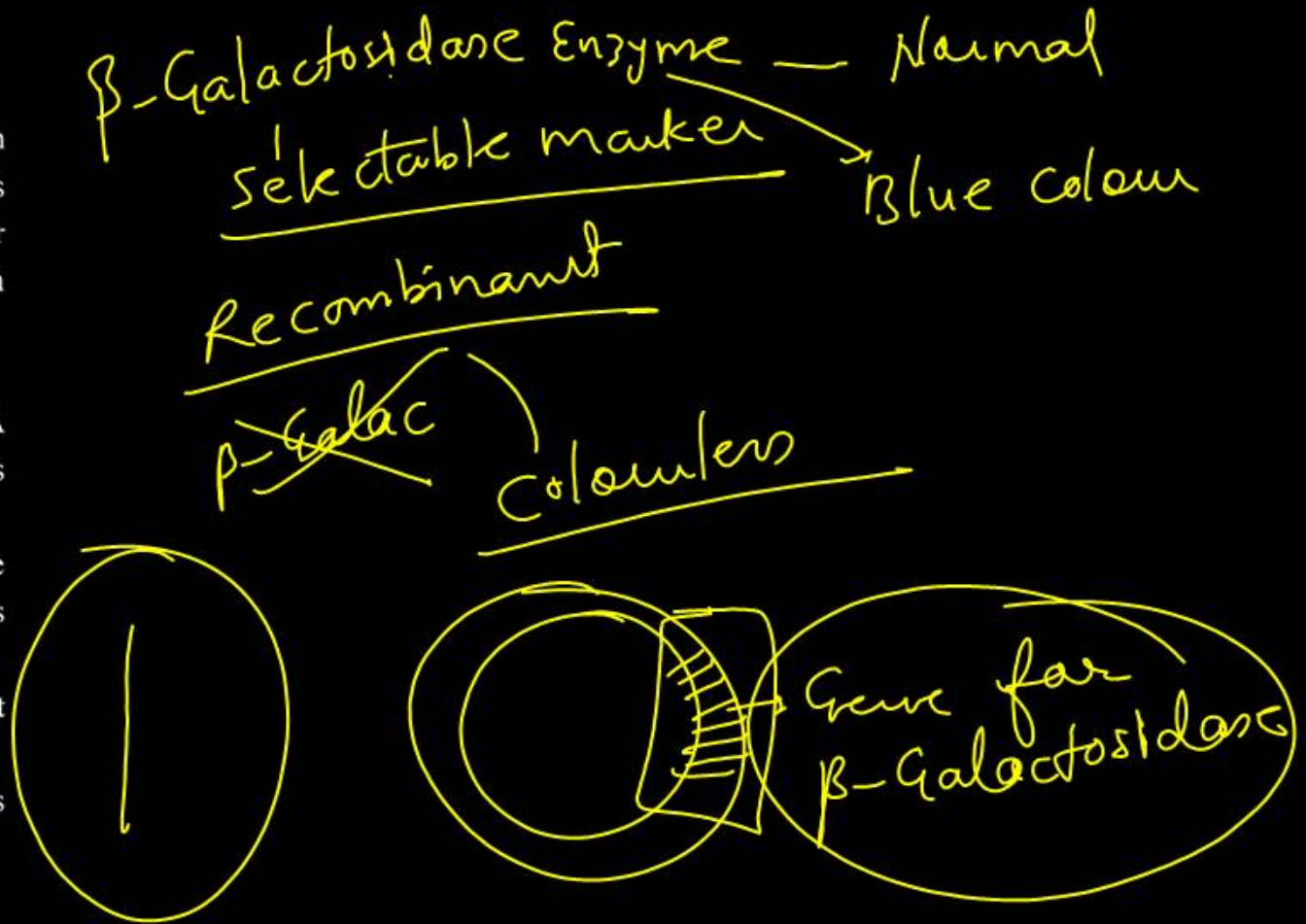
Given below are two statements about this method:

Statement I: The blue coloured colonies have DNA insert in the plasmid and they are identified as recombinant colonies.

Statement II: The colonies without blue colour have DNA insert in the plasmid and are identified as recombinant colonies.

In the light of the above statements, choose the **most appropriate** answer from the options given below:

- (1) Statement I is incorrect but Statement II is 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 no. 102

In bryophytes, the gemmae help in which one of the following?

- (1) ~~Gasceous~~ exchange
- (2) ~~Sexual~~ reproduction
- (3) Asexual reproduction
- (4) ~~Nutrient~~ absorption

3

PLANT KINGDOM

Question no. 103

Match List I with List II.

List I

- A. Adenosine
- B. Adenylic acid
- C. Adenine
- D. Alanine

List II

- I. Nitrogen base
- II. Nucleotide
- III. Nucleoside
- IV. Amino acid

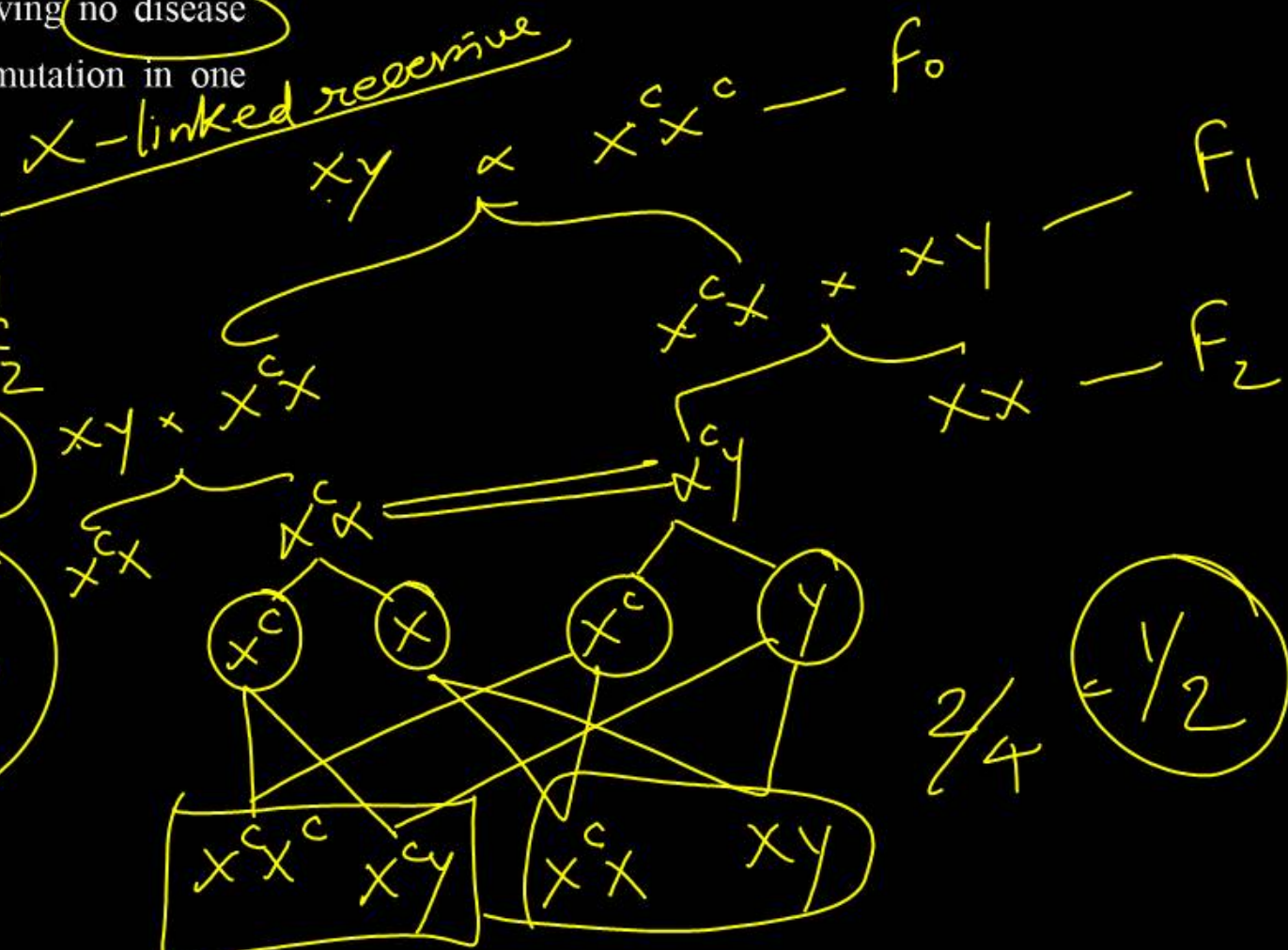
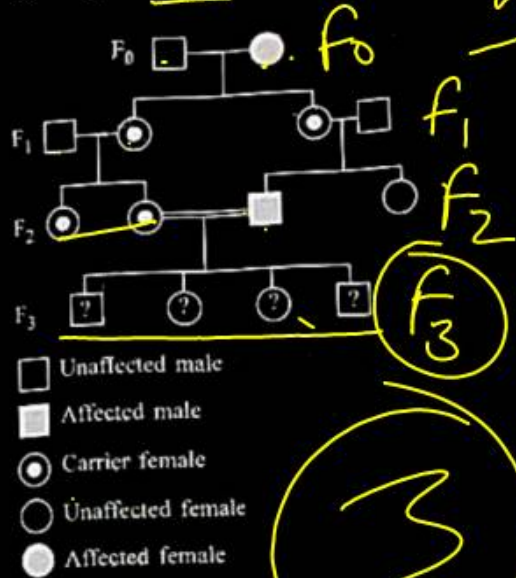
Choose the option with all correct matches:

- (1) ~~A-II, B-III, C-I, D-IV~~
- (2) ~~A-III, B-IV, C-II, D-I~~
- (3) ~~A-III, B-II, C-IV, D-I~~
- (4) A-III, B-I, C-I, D-IV

4

Question no. 104

With the help of given pedigree, find out the probability for the birth of a child having no disease and being a carrier (has the disease mutation in one allele of the gene) in F_3 generation.



(1) Zero

(2) $1/4$

(3) $1/2$

(4) $1/8$

Question no. 105

Consider the following statements regarding function of adrenal medullary hormones:

A. It causes pupillary constriction

Adrenaline
Dilation. Not - Adrenaline

B. It is a hyperglycemic hormone

Blood Glucose ↑

C. It causes piloerection

Goose-Bumps -

D. It increases strength of heart contraction

Heart Beat

Choose the correct answer from the options given below:

(1) D only

(2) C and D only

(3) B, C and D only

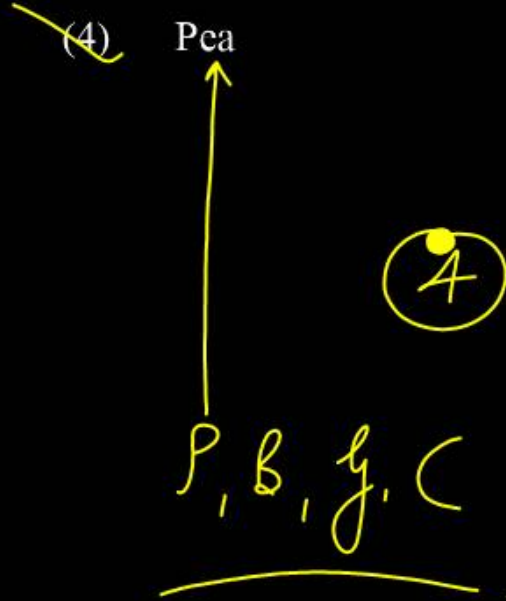
(4) A, C and D only

3

Question no. 106

Which of the following is an example of a zygomorphic flower?

- (1) ~~Chilli~~
- (2) ~~Petunia~~
- (3) Datura
- (4) ~~Pea~~



MORPHOLOGY

Question no. 107

Who proposed that the genetic code for amino acids should be made up of three nucleotides?

- (1) Franklin Stahl (2) George Gamow
(3) Francis Crick (4) Jacques Monod

2

Question no. 108

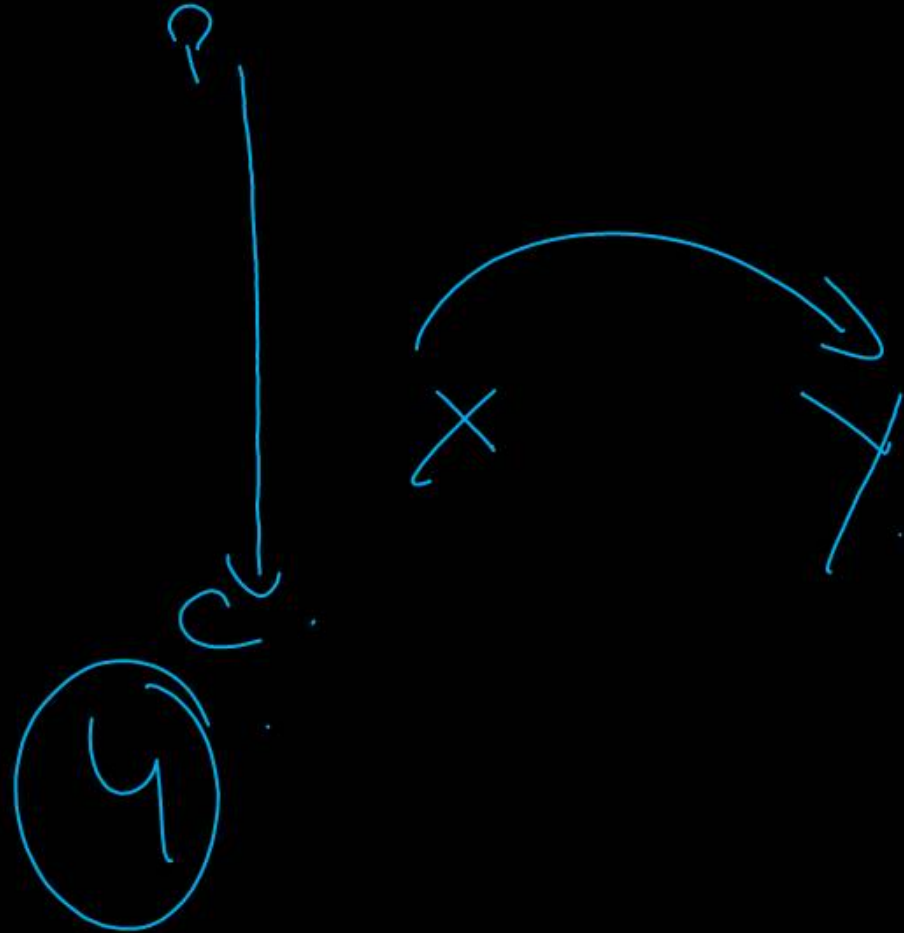
Given below are two statements:

Statement I: In ecosystem, there is unidirectional flow of energy of sun from producers to consumers.

Statement II: Ecosystems are exempted from 2nd law of thermodynamics.

Choose the **most appropriate** answer from the options given below:

- (1) Statement I is incorrect but Statement II is 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



root stem

Sweet potato and potato represent a certain type of evolution. Select the correct combination of terms to explain the evolution.

- (1) Analogy, divergent
- (2) Analogy, convergent ✓
- (3) Homology, divergent
- (4) Homology, convergent

2

Question no. 110

All living members of the class Cyclostomata are:

- (1) Ectoparasite
- (2) Free living
- (3) Endoparasite
- (4) Symbiotic



Question no. 111

Histones are enriched with:

- (1) Phenylalanine & Arginine
- (2) Lysine & Arginine
- (3) Leucine & Lysine
- (4) Phenylalanine & Leucine

2

Question no. 112

Which one of the following equations represents the Verhulst-Pearl Logistic Growth of population?

(1) $dN/dt = N[(r - K)/K]$

(2) $dN/dt = r[(K-N)/K]$

(3) $dN/dt = rN[(K-N)/K]$

(4) $dN/dt = rN[(N - K)/N]$

3

Question no. 113

Assertion (A): The primary function of the Golgi apparatus is to package the materials made by the endoplasmic reticulum and deliver it to intracellular targets and outside the cell.

Reason (R): Vesicles containing materials made by the endoplasmic reticulum fuse with the cis face of the Golgi apparatus, and they are modified and released from the trans face of the Golgi apparatus.

Choose the correct answer.

- (1) A is false but R is true
- (2) Both A and R are true and R is the correct explanation of A
- (3) Both A and R are true but R is not the correct explanation of A
- (4) A is true but R is false

CELL

forming

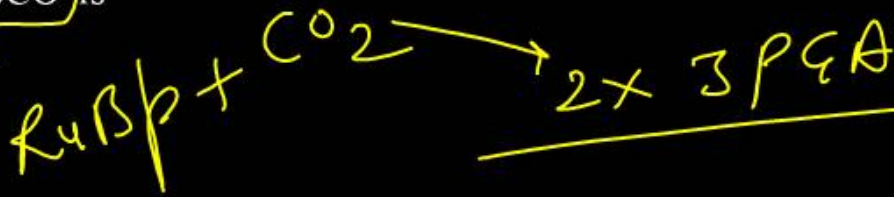
Maturing

2

Question no. 114

Which of the following statements about RuBisCO is true?

- (1) It catalyzes the carboxylation of RuBP
- (2) It is ~~active~~ only in the dark
- (3) It has higher affinity for ~~oxygen~~ than carbon dioxide
- (4) It is ~~an enzyme~~ involved in the photolysis of water



1

Question no. 115

Match List I with List II.

- | | |
|-----------------------------------|----------------------|
| A. Progesterone | I. Pars intermedia |
| B. Relaxin | II. Ovary |
| C. Melanocyte stimulating hormone | III. Adrenal Medulla |
| D. Catecholamines | IV. Corpus luteum |

Choose the correct answer:

- (1) A-III, B-II, C-IV, D-I
- (2) A-IV, B-II, C-I, D-III ✓
- (3) A-IV, B-II, C-III, D-I
- (4) A-II, B-IV, C-I, D-III

2

Question no. 116

The protein portion of an enzyme is called:

- (1) Prosthetic group
- (2) Cofactor
- (3) Coenzyme
- (4) Apoenzyme



Question no. 117

Which of the following enzyme(s) are NOT essential for gene cloning?

A. Restriction enzymes ✓

B. DNA ligase ✓

C. DNA mutase ✗

D. DNA recombinase ✗

E. DNA polymerase ✓

Choose the correct answer:

(1) B and C only (2) C and D only ✓

(3) A and B only (4) D and E only

2

Question no. 118

Which of the following type of immunity is present at the time of birth and is a non-specific type of defense in the human body?

- (1) Humoral Immunity
- (2) Acquired Immunity
- (3) Innate Immunity
- (4) Cell-mediated Immunity

3

Question no. 119

Which factor is important for termination of transcription?

(1) γ (gamma)

(2) α (alpha)

(3) σ (sigma)

(4) ρ (rho)

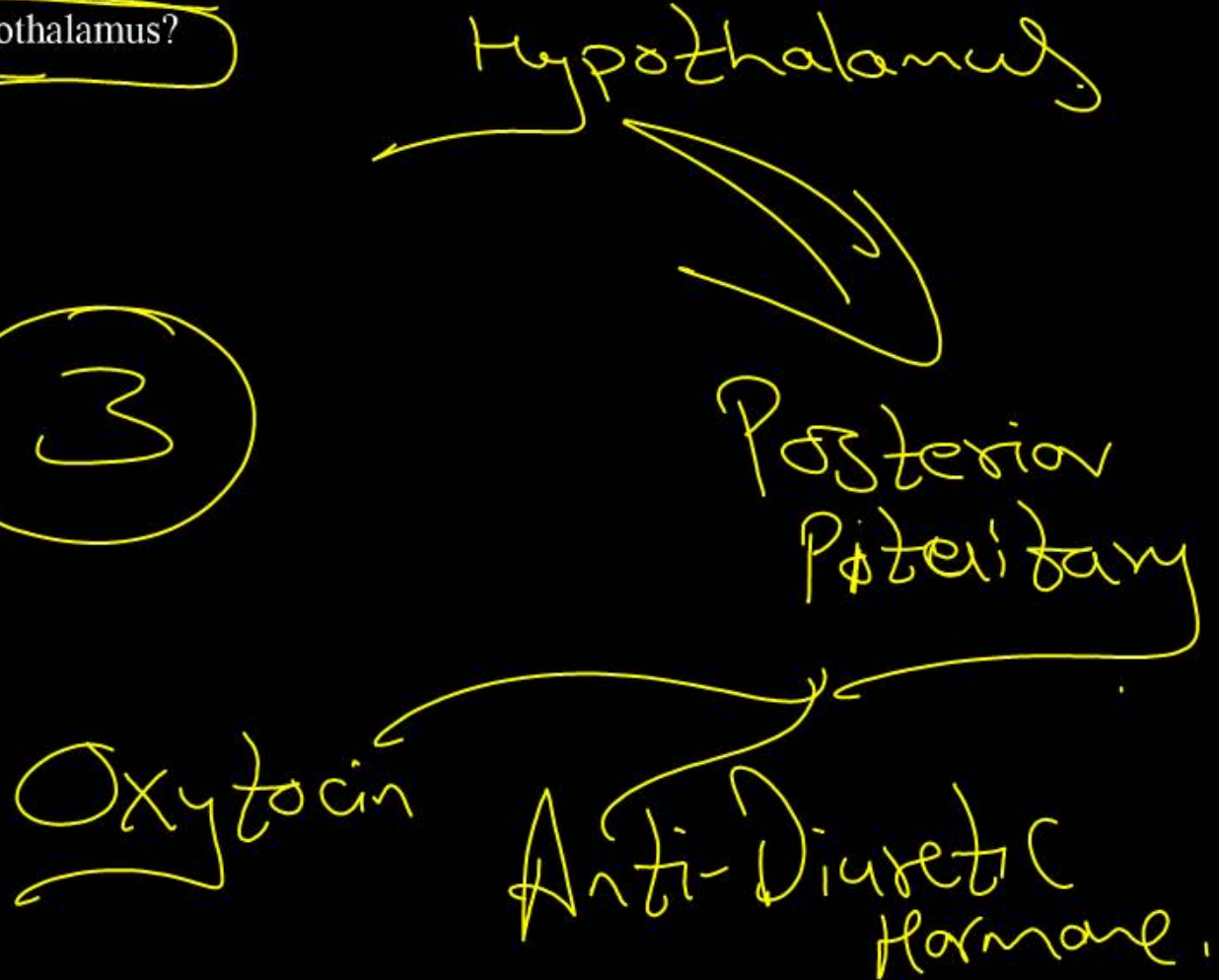
✓
4

Question no. 120

Which of the following hormones released from the pituitary is actually synthesized in the hypothalamus?

- (1) ACTH (2) LH
(3) ADH (4) FSH

3



Question no. 121

Which of the following microbes is **NOT** involved in the preparation of household products?

- A. *Aspergillus niger* ✗
- B. *Lactobacillus* ✓
- C. *Trichoderma polysporum* ✗
- D. *Saccharomyces cerevisiae* ✓
- E. *Propionibacterium shermanii* ✓

Choose the correct answer:

- (1) C and E only
- (2) A and B only
- (3) A and C only ✓
- (4) C and D only

Household Products

3

Question no. 122

Statement I: Fig fruit is a non-vegetarian fruit as it has enclosed fig wasps in it. ✗

Statement II: Fig wasp and fig tree exhibit mutual relationship as fig wasp completes its life cycle in fig fruit and fig fruit gets pollinated by fig wasp. ✗

Choose the most appropriate answer:

- (1) Statement I is incorrect but Statement II is 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

3

Question no. 123

Role of the water vascular system in echinoderms is:

A. Respiration and locomotion ✓

B. Excretion and locomotion ✗

C. Capture and transport of food ✓

D. Digestion and respiration

E. Digestion and excretion

Choose the correct answer:

(1) B, D and E only ✓

(2) A and B only ✗

(3) A and C only ✓

(4) B and C only ✗

L - Locomotion

D - Digestion

R - Respiration

3

Question no. 124

After maturation in primary lymphoid organs, the lymphocytes migrate for interaction with antigens to secondary lymphoid organs:

- A. Thymus
- B. Bone marrow
- C. Spleen
- D. Lymph nodes
- E. Peyer's patches

Choose the correct answer:

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

Question no. 125

Match List I with List II:

List I: **List II:**

- | | |
|-------------------------|------------------------------------|
| A. The Evil Quartet | I. Cryopreservation |
| B. Ex situ conservation | II. Alien species invasion |
| C. Lantana camara | III. Causes of biodiversity losses |
| D. Dodo | IV. Extinction |

Choose the option with all correct matches:

- (1) A-III, B-II, C-IV, D-I
- (2) A-III, B-II, C-I, D-IV
- (3) A-III, B-I, C-II, D-IV ✓
- (4) A-III, B-IV, C-II, D-I

3

Question no. 126

Read the following statements on plant growth and development:

- A. Parthenocarpy can be induced by auxins. ✓
- B. Plant growth regulators can be involved in promotion as well as inhibition of growth. ✓
- C. Dedifferentiation is a pre-requisite for redifferentiation. ✓
- D. Abscisic acid is a plant growth promoter. ✗
- E. Apical dominance promotes the growth of lateral buds. ✗


Choose the option with all correct statements:

- (1) B, D, E only ✗
- (2) A, B, C only ✓
- (3) A, C, E only ✗
- (4) A, D, E only ✗

2

Question no. 127

Match List I with List II:

- | <u>List I:</u> | <u>List II:</u> |
|-----------------|------------------|
| A. Pteridophyte | I. Salvia |
| B. Bryophyte | II. Ginkgo |
| C. Angiosperm | III. Polytrichum |
| D. Gymnosperm | IV. Salvinia |
- 

PLANT KINGDOM

Choose the option with all correct matches:

- (1) A-IV, B-III, C-II, D-I
- (2) ~~A-III~~, B-IV, C-II, D-I
- (3) ~~A-IV~~, B-III, C-I, D-II
- (4) ~~A-III~~, B-IV, C-I, D-II

3

Question no. 128

Why can't insulin be given orally to diabetic patients?

- (1) Its bioavailability will be increased
- (2) Human body will elicit strong immune response
- (3) It will be digested in Gastro-Intestinal (GI) tract
- (4) Because of structural variation



Humulin

Protein hormone

↓
orally

↓
Stomach HCl

Question no. 129

Which one of the following is the characteristic feature of gymnosperms?

- (1) Gymnosperms have ~~flowers~~ for reproduction
- (2) Seeds are ~~enclosed~~ in fruits
- (3) Seeds are naked
- (4) Seeds are ~~absent~~

P.K

3

Question no. 130

Frogs respire in water by skin and buccal cavity and on land by skin, buccal cavity and lungs.

Choose the correct answer:

- (1) The statement is false for both the environment
- (2) The statement is true for water but false for land
- (3) The statement is true for both the environment
- (4) The statement is false for water but true for land

4

Question no. 131

Silencing of specific mRNA is possible via RNAi

because of -

- (1) Non-complementary ssRNA
- (2) Complementary dsRNA
- (3) Inhibitory ssRNA
- (4) Complementary tRNA

2

Question no. 132

Twins are born to a family that lives next door to you.
The twins are a boy and a girl. Which of the following
must be true?

- (1) They have 75% identical genetic content
- (2) They are monozygotic twins
- (3) They are fraternal twins
- (4) They were conceived through in vitro fertilization

3

Question no. 133

Match List I with List II:

List I:

- A. Scutellum
- B. Non-albuminous seed
(Dicot)
- C. Epiblast
- D. Perisperm

List II:

- I. Persistent nucellus
- II. Cotyledon of Monocot seed
- III. Groundnut
- IV. Rudimentary cotyledon

SRFP

Choose the option with all correct matches:

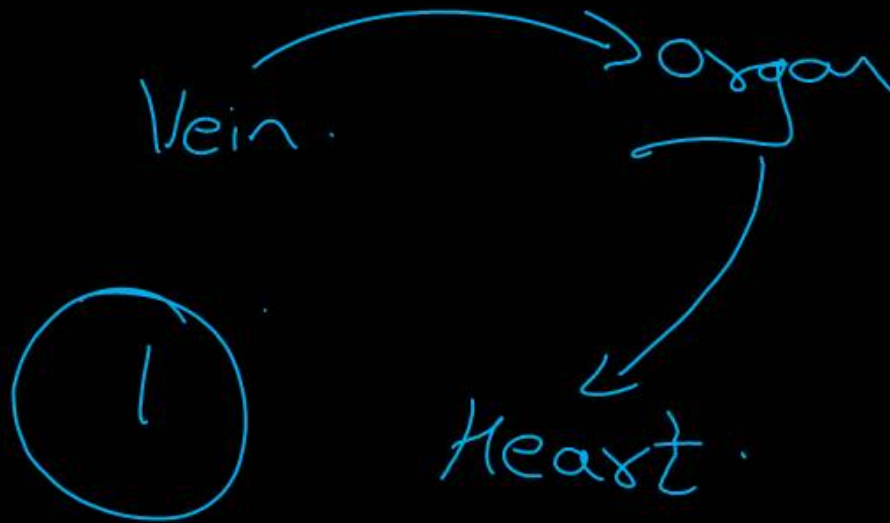
- (1) A-II, ~~B-IV~~, C-III, D-I
- (2) A-II, B-III, C-IV, D-I
- (3) A-IV, B-III, C-II, D-I
- (4) A-IV, B-III, C-I, D-II

2

Question no. 134

In frog, the renal portal system is a special venous connection that acts to link:

- (1) Kidney and lower part of body
- (2) Liver and intestine
- (3) Liver and kidney
- (4) Kidney and intestine



Question no. 135

Match List I with List II:

List I:

- A. Heart
- B. Kidney
- C. Gastro-intestinal tract
- D. Adrenal Cortex

List II:

- I. Erythropoietin
- II. Aldosterone
- III. Atrial natriuretic factor
- IV. Secretin

Choose the correct answer:

- (1) A-III, B-I, C-IV, D-II ✓
- (2) A-II, B-I, C-III, D-IV
- (3) A-IV, B-III, C-II, D-I
- (4) A-I, B-III, C-IV, D-II



Question no. 136

Cardiac activities of the heart are regulated by:

- A. Nodal tissue = SA ✓ AV ✓
- B. A special neural centre in the medulla oblongata ✓ = Cardiac centre
- C. Adrenal medullary hormones = Adrenaline
- D. Adrenal cortical hormones ✗

Choose the correct answer:

- (1) A, B and D only
- (2) A, B and C only ✓
- (3) A, B, C and D
- (4) A, C and D only

2

Question no. 137

Streptokinase produced by *bacterium Streptococcus*
is used for:

- (1) Removing clots from blood vessels
- (2) Curd production
- (3) Ethanol production
- (4) Liver disease treatment

Clot-Buster
Fibrolytic

1

Question no. 138

Who is known as the father of Ecology in India?

- (1) Birbal Sahni (2) S. R. Kashyap
(3) Ramdeo Misra (4) Ram Udar

3

Question no. 139

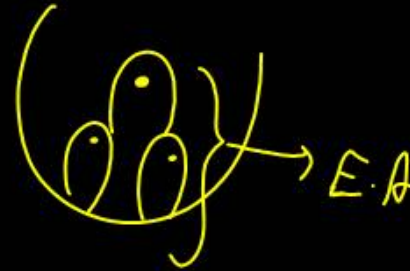
Assertion (A): A typical unfertilised, angiosperm embryo sac at maturity is 8 nucleate and 7-celled.

Reason (R): The egg apparatus has 2 polar nuclei.

Choose the correct answer:

- (1) A is false but R is true
- (2) Both A and R are true and R is the correct explanation of A
- (3) Both A and R are true but R is NOT the correct explanation of A
- (4) A is true but R is false

S.R.F.P



A

Question no. 140

Neoplastic characteristics of cells refer to:

- A. A mass of proliferating cell ✓
- B. Rapid growth of cells ✓
- C. Invasion and damage to surrounding tissue ✓
- D. Those confined to original location ✗

Choose the correct answer:

- (1) B, C, D only
- (2) A, B only
- (3) A, B, C only ✓
- (4) A, B, D only

Tumour

Spread ✓

3

Question no. 141

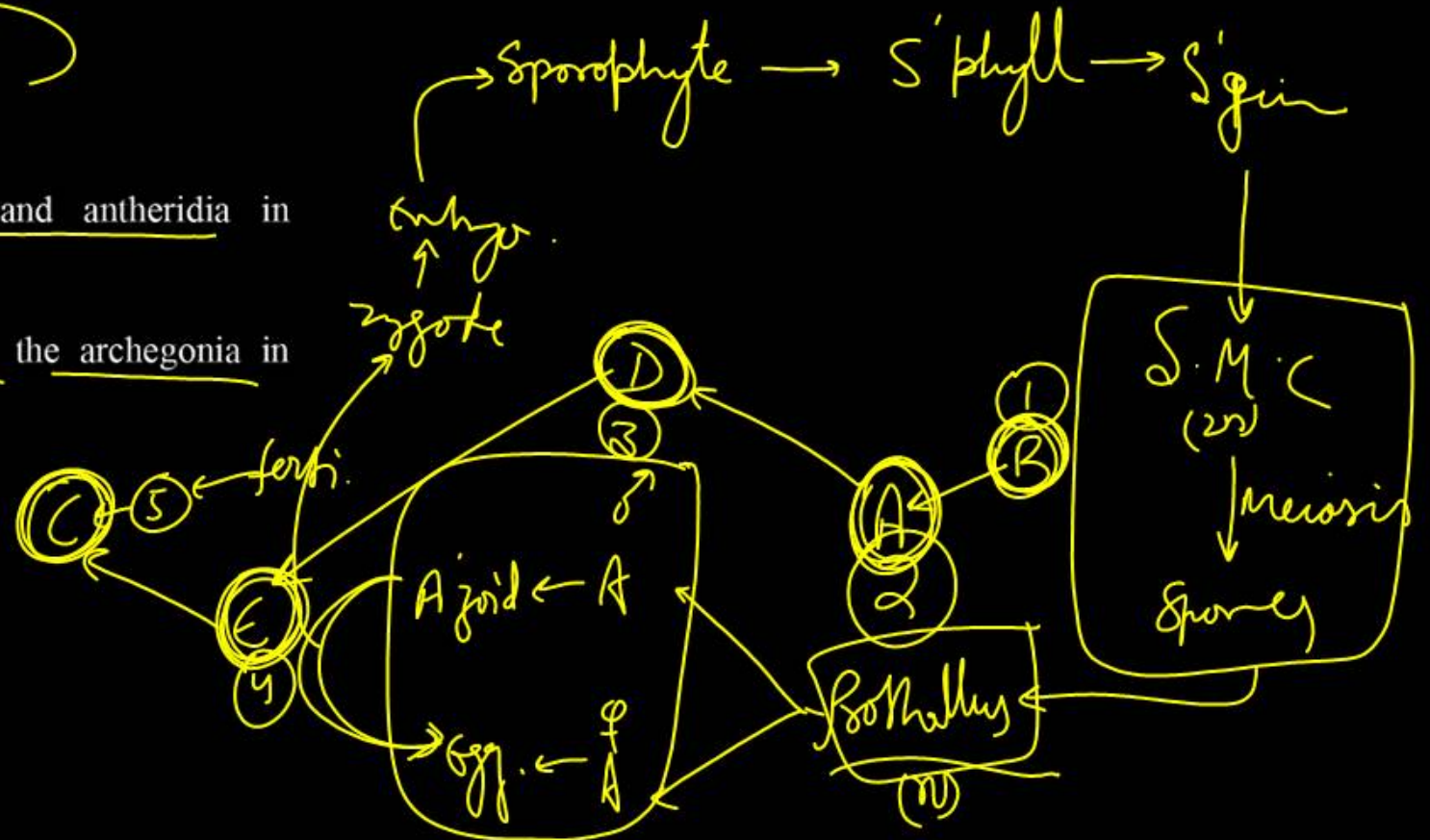
Given below are the stages in the life cycle of pteridophytes. Arrange the following stages in the correct sequence:

- A. Prothallus stage
- B. Meiosis in spore mother cells
- C. Fertilisation
- D. Formation of archegonia and antheridia in gametophyte
- E. Transfer of antherozoids to the archegonia in presence of water

Choose the correct answer:

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

2



Question no. 142

Assertion (A): Both wind and water pollinated flowers are not very colourful and do not produce nectar.

Reason (R): The flowers produce enormous amount of pollen grains in wind and water pollinated flowers.

Choose the correct answer:

- (1) A is ~~false~~ but R is true
- (2) Both A and R are true and R is the correct explanation of A
- (3) Both A and R are true but R is NOT the correct explanation of A
- (4) A is true but R is ~~false~~

SRF

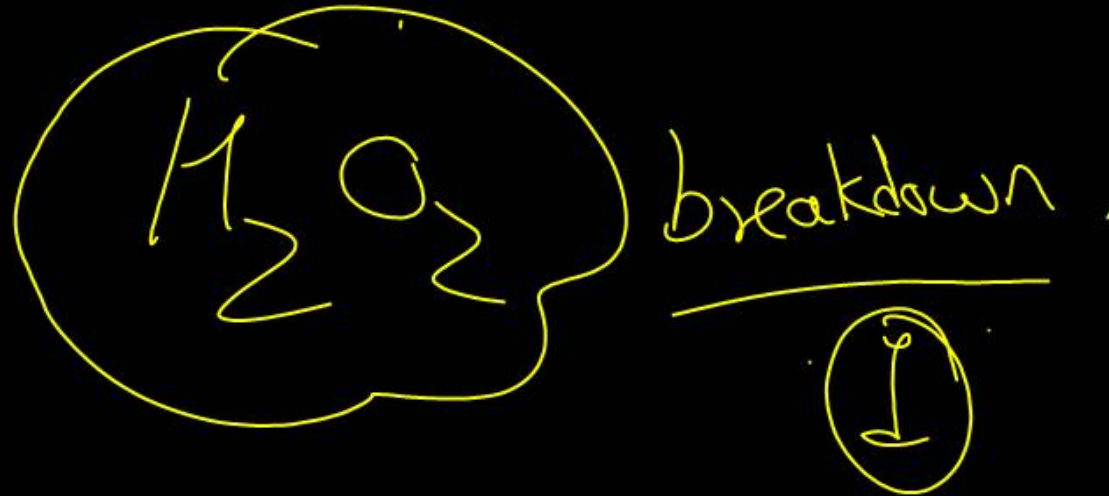
3

Question no. 143

Which one of the following enzymes contains 'Haem' as the prosthetic group?

- (1) Catalase
- (2) RuBisCO
- (3) Carbonic anhydrase
- (4) Succinate dehydrogenase

Non-Protein Part
or Peroxidase.
organic
tightly bound.



Question no. 144

Match List I with List II:

List I:	List II:
A. Emphysema	I. Rapid spasms in muscle due to low Ca^{++} in body fluid
B. Angina Pectoris	II. Damaged alveolar walls and decreased respiratory surface
C. Iomerulonephritis	III. Acute chest pain when not enough oxygen is reaching to heart muscle
D. Tetany	IV. Inflammation of glomeruli of kidney

Choose the correct answer:

- (1) A-II, B-III, C-IV, D-I ✓
(2) A-III, B-I, C-IV, D-II
(3) A-III, B-I, C-II, D-IV
(4) A-II, B-IV, C-III, D-I



Question no. 145

Find the statement that is NOT correct with regard to the structure of monocot stem.

- (1) Phloem parenchyma is absent.
- (2) Hypodermis is parenchymatous.
- (3) Vascular bundles are scattered.
- (4) Vascular bundles are conjoint and closed.



Question no. 146

Which of the following statement is correct about location of the male frog copulatory pad?

- (1) First digit of the fore limb
- (2) First and second digit of fore limb
- (3) First digit of hind limb
- (4) Second digit of fore limb



Question no. 147

Statement I: The primary source of energy in an ecosystem is solar energy.

Statement II: The rate of production of organic matter during photosynthesis in an ecosystem is called net primary productivity (NPP).

Choose the most appropriate answer:

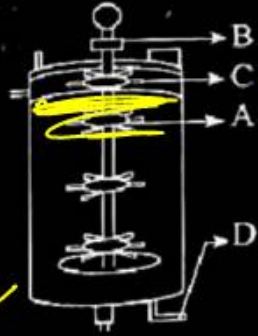
- (1) Statement I is incorrect but Statement II is correct
- (2) Both Statement I and Statement II are correct
- (3) Both Statement I and Statement II are incorrect
- (4) Statement I is correct but Statement II is incorrect

GROSS

4

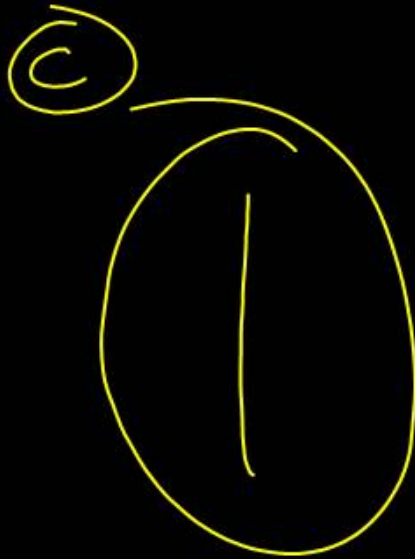
Question no. 148

Identify the part of a bioreactor which is used as a foam breaker from the given figure.



- (1) C
- (3) B

- (2) A
- (4) D



Question no. 149

Polymerase chain reaction (PCR) amplifies DNA following the equation:

(1) $2N^2$

(2) N^2

(3) ~~2^n~~ 2^n

(4) $2n + 1$

3

Question no. 150

Match List I with List II:

List I:

List II:

- | | |
|-----------------|----------------------|
| A. Head | I. Enzymes |
| B. Middle piece | II. Sperm motility |
| C. Acrosome | III. Energy |
| D. Tail | IV. Genetic material |

(Mitochondria)

Choose the correct answer:

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

2

Question no. 151

Statement I: In a floral formula \oplus stands for zygomorphic nature of the flower, and G stands for inferior ovary.

Statement II: In a floral formula \oplus stands for actinomorphic nature of the flower and G stands for superior ovary.

Choose the correct answer:

- (1) Statement I is incorrect but Statement II is 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 no. 152

From the statements given below choose the correct option:

- A. The eukaryotic ribosomes are 80S and prokaryotic ribosomes are 70S.
- B. Each ribosome has two sub-units.
- C. The two sub-units of 80S ribosome are 60S and 40S while that of 70S are 50S and 30S.
- D. The two sub-units of 80S ribosome are 60S and 20S and that of 70S are 50S and 20S.
- E. The two sub-units of 80S are 60S and 30S and that of 70S are 50S and 30S.

Choose the correct answer:

- (1) B, D, E are true
- (2) A, B, C are true
- (3) A, B, D are true
- (4) A, B, E are true



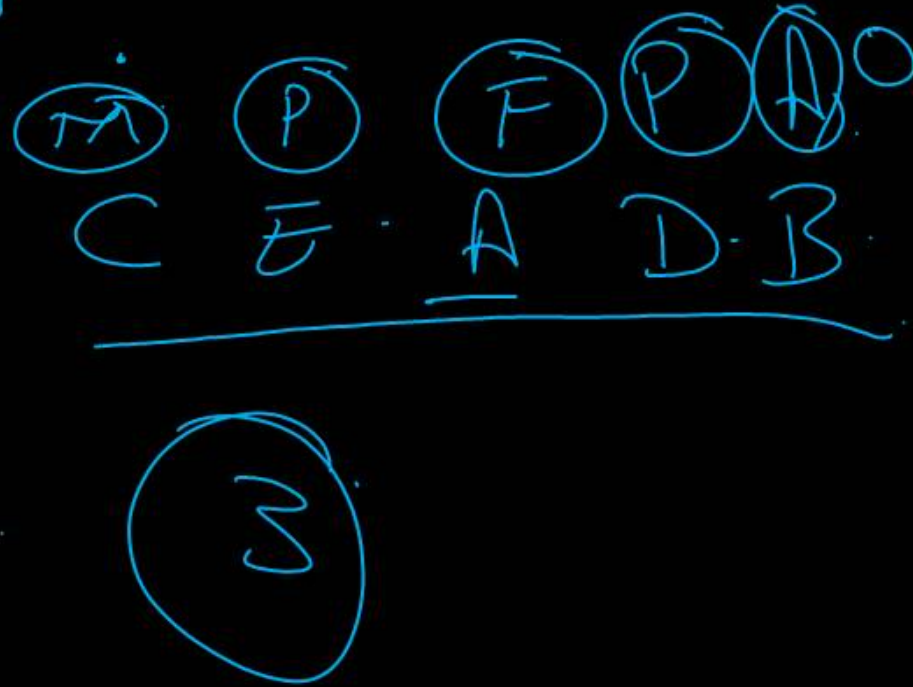
Question no. 153

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

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

Choose the correct answer:

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



Question no. 154

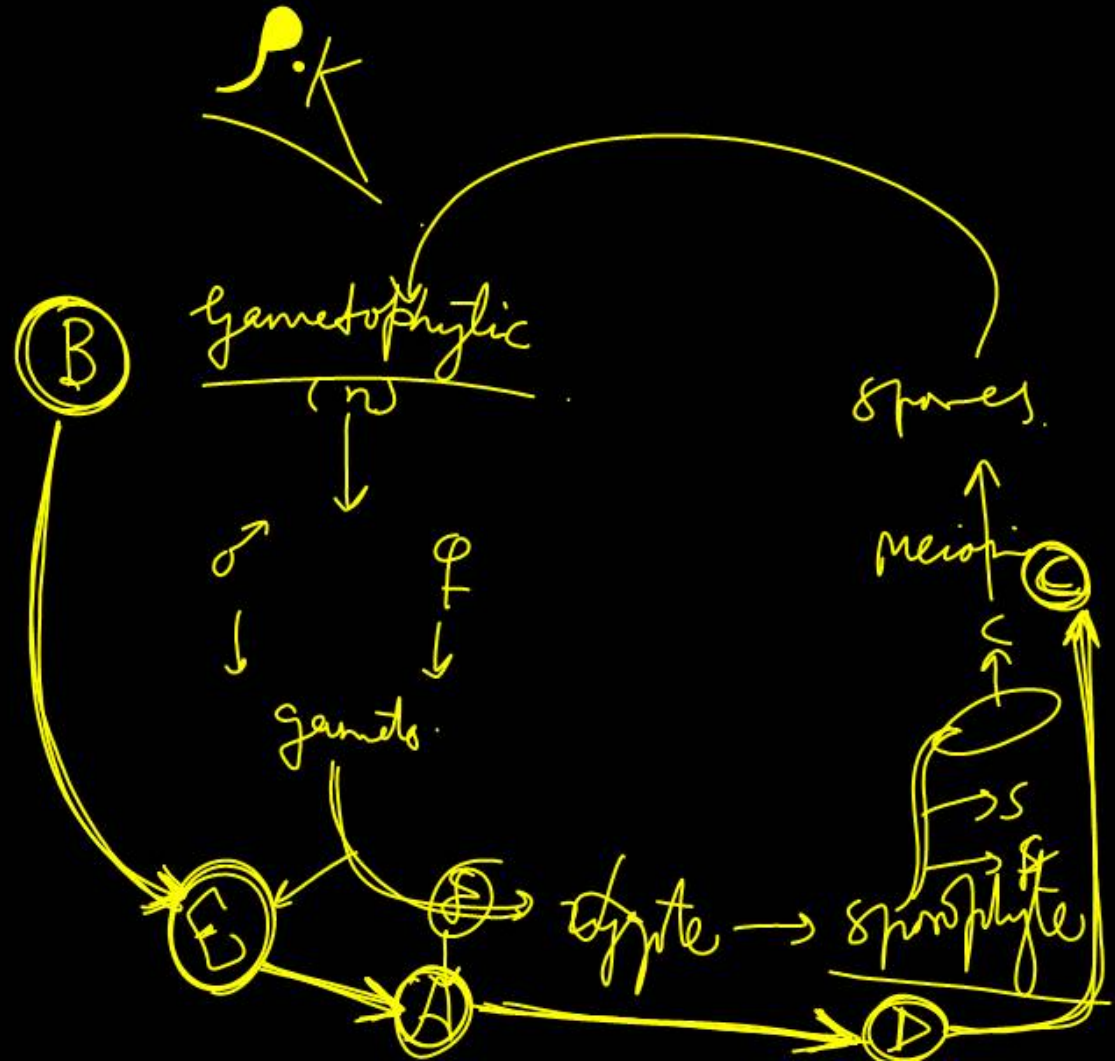
The correct sequence of events in the life cycle of bryophytes is:

- A. Fusion of antherozoid with egg
- B. Attachment of gametophyte to substratum
- C. Reduction division to produce haploid spores
- D. Formation of sporophyte
- E. Release of antherozoids into water

Choose the correct answer:

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

4



Question no. 155

Which are correct:

- A. Computed tomography and magnetic resonance imaging detect cancers of internal organs. ✓
- B. Chemotherapeutics drugs are used to kill non-cancerous cells. ✗
- C. α -interferon activate the cancer patients' immune system and helps in destroying the tumour. ✓
- D. Chemotherapeutic drugs are biological response modifiers.
- E. In the case of leukaemia blood cell counts are decreased. ✗



Choose the correct answer:

- (1) A and C only ✓
- (2) B and D only ✗
- (3) D and E only ✗
- (4) C and D only

Question no. 156

Name the class of enzyme that usually catalyze the following reaction:



Where $G \rightarrow$ a group other than hydrogen, $S \rightarrow$ a substrate, $S^{\#} \rightarrow$ another substrate.

- (1) Ligase
- (2) Hydrolase
- (3) Lyase
- (4) Transferase



Question no. 157

Find the correct statements:

- A. In human pregnancy, the major organ systems are formed at the end of 12 weeks. (3rd Trimester) ✓
- B. In human pregnancy the major organ systems are formed at the end of 8 weeks. ✗
- C. In human pregnancy heart is formed after one month of gestation. ✓
- D. In human pregnancy, limbs and digits develop by the end of second month. ✓
- E. In human pregnancy the appearance of hair is usually observed in the fifth month. ✓

Choose the correct answer:

- (1) A, C, D and E only ✓
- (2) A and E only
- (3) B and C only
- (4) B, C, D and E only

Gestation



Question no. 158

Which of the following is an example of non-distilled alcoholic beverage produced by yeast?

- (1) Rum
- (2) Whisky
- (3) Brandy
- (4) Beer

Beer
Wine
4

Question no. 159

Statement I: In the RNA world, RNA is considered the first genetic material evolved to carry out essential life processes. RNA acts as a genetic material and also as a catalyst for some important biochemical reactions in living systems. Being reactive, RNA is unstable.

Statement II: DNA evolved from RNA and is a more stable genetic material. Its double helical strands being complementary, resist changes by evolving repairing mechanism.

Choose the most appropriate answer:

- (1) Statement I is incorrect but Statement II is 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

2

Question no. 160

Statement I: ~~Transfer RNAs and ribosomal RNA do not interact with mRNA.~~ ^{t-RNA}

Statement II: RNA interference (RNAi) takes place in all eukaryotic organisms as a method of cellular defence.

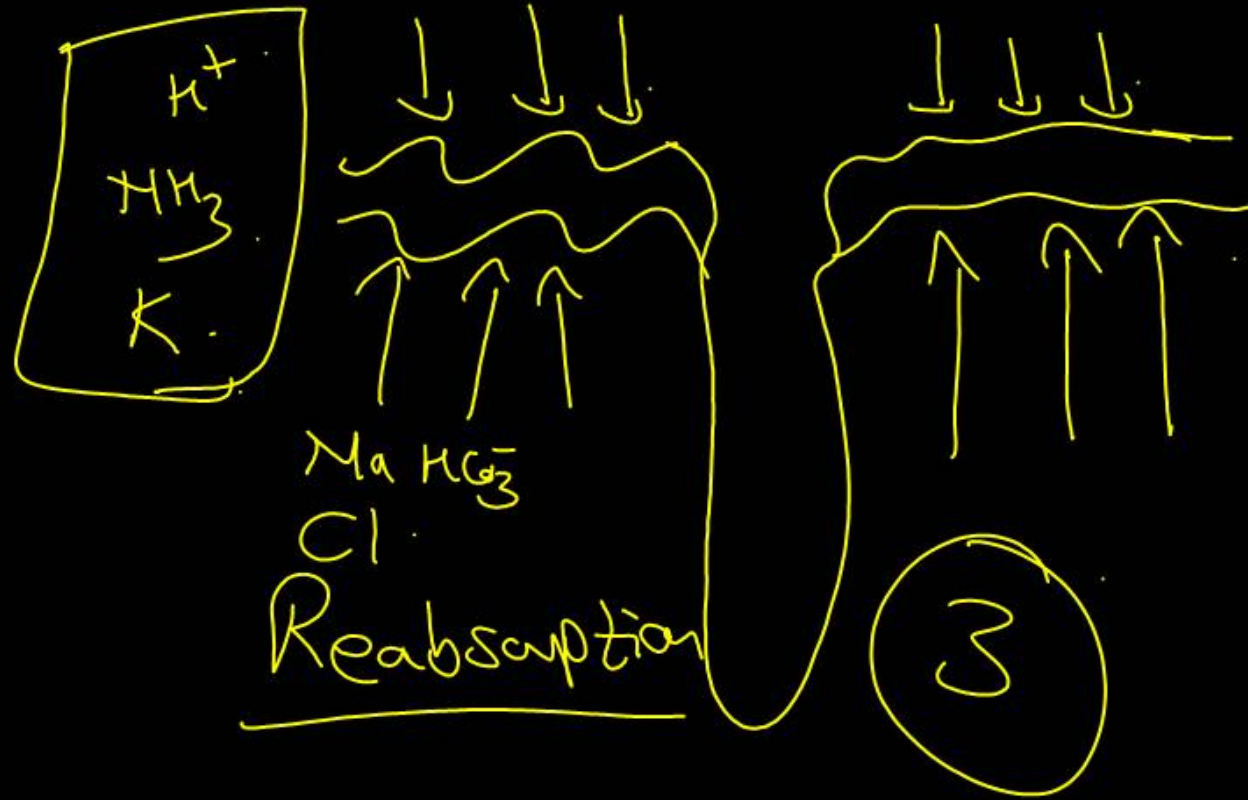
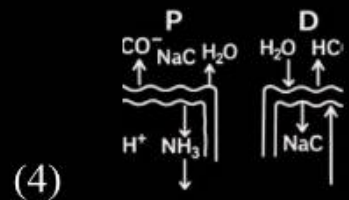
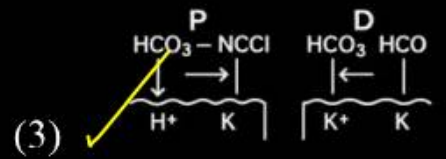
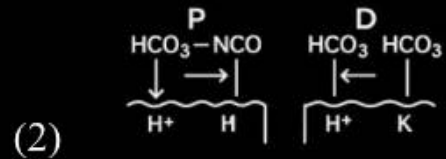
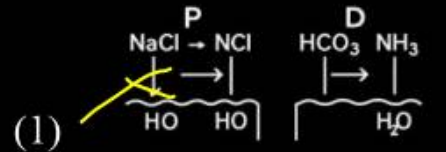
Choose the most appropriate answer:

- (1) ~~Statement I is incorrect but Statement II is 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

1

Question no. 161

Which of the following diagrams is correct with regard to the proximal (P) and distal (D) tubule of the Nephron?

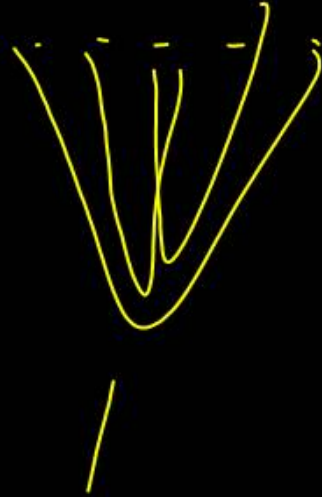


Question no. 162

What is the pattern of inheritance for polygenic trait?

- (1) X-linked recessive inheritance pattern
- (2) Mendelian inheritance pattern
- (3) Non-mendelian inheritance pattern
- (4) Autosomal dominant pattern

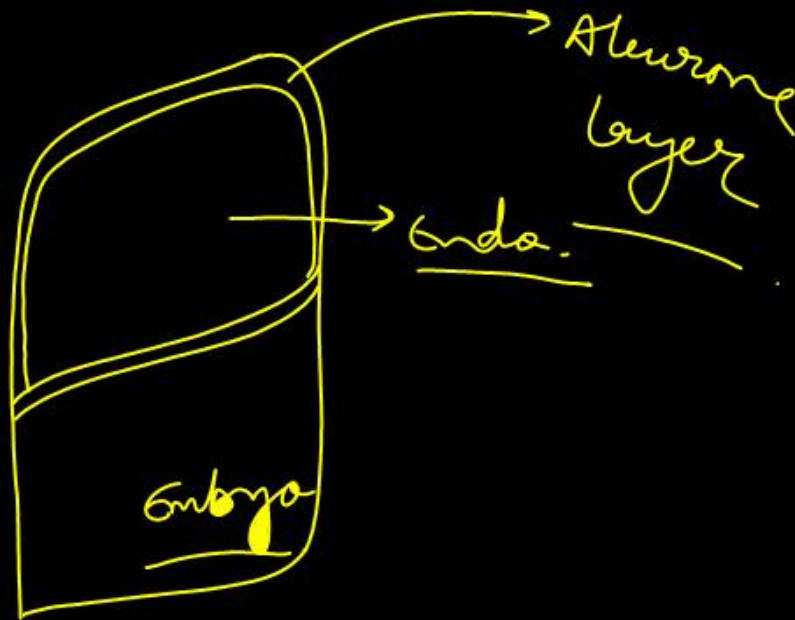
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Question no. 163

In the seeds of cereals, the outer covering of endosperm separates the embryo by a protein-rich layer called:

- (1) Aleurone layer
- (2) Coleoptile
- (3) Colcorhiza
- (4) Integument



Question no. 164

Match List I with List II:

List I:

List II:

- | | |
|------------------|-----------------------------|
| A. Chlorophyll a | I. Yellow-green |
| B. Chlorophyll b | II. Yellow |
| C. Xanthophylls | III. Blue-green |
| D. Carotenoids | IV. Yellow to Yellow-orange |

Choose the option with all correct matches:

- (1) A-I, B-IV, C-III, D-II
- (2) A-III, B-IV, C-II, D-I
- (3) A-III, B-I, C-II, D-IV ✓
- (4) A-I, B-II, C-IV, D-III

3

Question no. 165

Which of the following genetically engineered organisms was used by Eli Lilly to prepare human insulin?

(1) ~~Phage~~

(2) Bacterium ✓

(3) ~~Yeast~~

(4) ~~Virus~~

2

Question no. 166

Which of the following are the post-transcriptional events in an eukaryotic cell?

- A. Transport of ~~pre-mRNA~~ to cytoplasm prior to splicing
- B. Removal of introns and joining of exons ✓
- C. Addition of methyl group at 5' end of hnRNA ✓
- D. Addition of adenine residues at 3' end of hnRNA ✓
- E. Base pairing of two complementary RNAs ✗

Choose the correct answer:

- (1) C, D, E only (2) A, B, C only
- (3) ~~B, C, D only~~ (4) B, C, E only

3

Question no. 167

Match List I with List II:

List I:

List II:

- A. Centromere → I. Mitochondrion
B. Cilium → II. Cell division
C. Cristae → III. Cell movement
D. Cell membrane → IV. Phospholipid bilayer

CELL

Choose the correct answer:

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



Question no. 168

Match List I with List II:

List I:		List II:	
A.	Alfred Hershey and Martha Chase	I.	Streptococcus pneumoniae
B.	Euchromatin	II.	Densely packed and dark-stained
C.	Frederick Griffith	III.	Loosely packed and light-stained
D.	Heterochromatin	IV.	DNA as genetic material confirmation

Choose the correct answer:

- (1) ~~A-III, B-II, C-IV, D-I~~
(2) ~~A-II, B-IV, C-I, D-III~~
(3) A-IV, B-II, C-I, D-III
(4) A-IV, B-III, C-I, D-II

4

Question no. 169

Which chromosome in the human genome has the highest number of genes?

- (1) Chromosome 10
- (2) Chromosome X
- (3) Chromosome Y
- (4) Chromosome 1

4

2968 Gene

Question no. 170

What are the potential drawbacks in adoption of the IVF method?

- A. High fatality risk to mother
- B. Expensive instruments and reagents
- C. Husband/wife necessary for being donors
- D. Less adoption of orphans
- E. Not available in India
- F. Possibility that the early embryo does not survive

Choose the correct answer:

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

3 or 2 or 1

In vitro fertilization

Risk

2

Question no. 171

Which one of the following is an example of ex-situ conservation?

- (1) Protected areas
- (2) National Park
- (3) Wildlife Sanctuary
- (4) Zoos and botanical gardens

4

Question no. 172

A specialised membranous structure in a prokaryotic cell which helps in cell wall formation, DNA replication and respiration is:

- (1) Endoplasmic Reticulum
- (2) Mesosome
- (3) Chromatophores
- (4) Cristae

2

CELL

Question no. 173

In the above represented plasmid an alien piece of DNA is inserted at EcoRI site. Which of the following strategies will be chosen to select the recombinant colonies?



- (1) Blue color colonies grown on ~~ampicillin~~ plates can be selected.
- (2) Using ~~ampicillin~~ & tetracycline containing medium plate
- (3) ~~Blue color colonies will be selected.~~
- (4) White color colonies will be selected.

Question no. 174

What is the name of the blood vessel that carries deoxygenated blood from the body to the heart in a frog?

- (1) Vena cava ✓
- (2) Aorta ✗
- (3) Pulmonary artery ✓
- (4) Pulmonary vein ✗



Question no. 175

Which of the following organisms cannot fix nitrogen?

A. Azotobacter ✓

B. Oscillatoria ✓

C. Anabaena ✓

D. Volvox ✓

E. Nostoc ✓

Choose the correct answer:

(1) E only ✓

(2) A only

(3) D only ✓

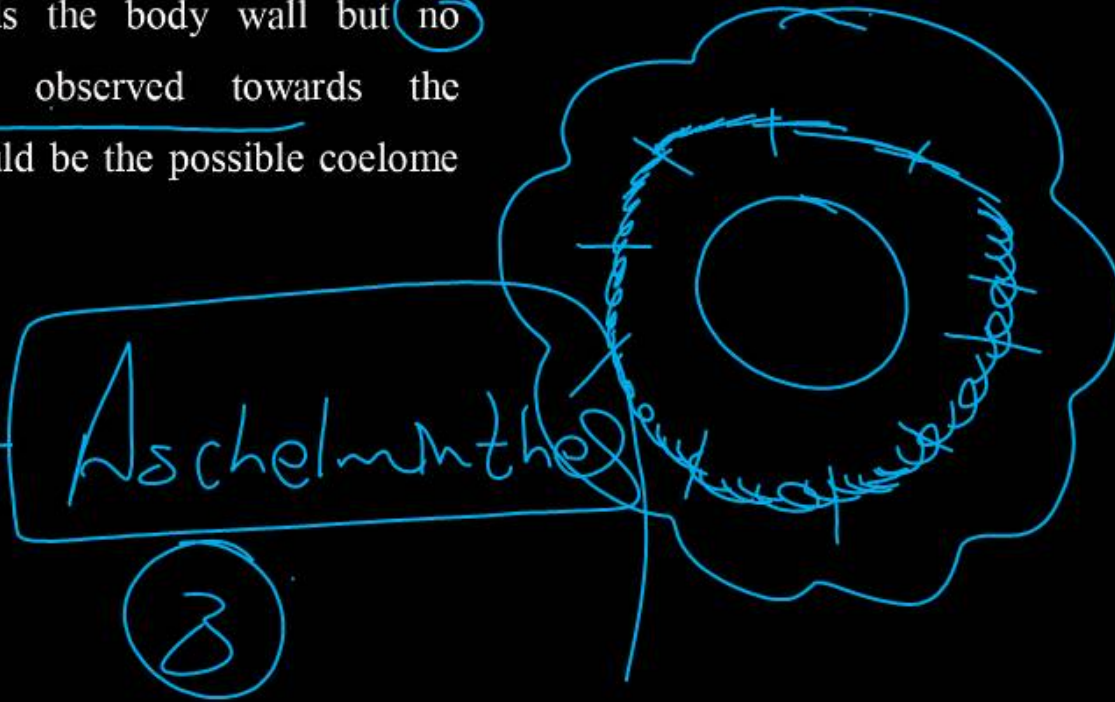
(4) B only

3

Question no. 176

While trying to find out the characteristic of a newly found animal, a researcher did the histology of adult animal and observed a cavity with presence of mesodermal tissue towards the body wall but no mesodermal tissue was observed towards the alimentary canal. What could be the possible coelome of that animal?

- (1) Spongocoelomate
- (2) Acoelomate
- (3) Pseudocoelomate
- (4) Schizocoelomate



Question no. 177

Which one of the following statements refers to Reductionist Biology?

- (1) Behavioural approach to study and understand living organisms
- (2) Physico-chemical approach to study and understand living organisms
- (3) Physiological approach to study and understand living organisms
- (4) Chemical approach to study and understand living organisms

Cell

∴
2

Question no. 178

Epiphytes that are growing on a mango branch is an example of which of the following?

- (1) Amensalism (2) Commensalism
(3) Mutualism (4) Predation

2

Question no. 179

Which one of the following phytohormones promotes nutrient mobilization which helps in the delay of leaf senescence in plants?

- (1) Cytokinin (2) Ethylene
(3) Abscisic acid (4) Gibberellin



Question no. 180

The complex II of mitochondrial electron transport chain is also known as:

(1) NADH dehydrogenase ^I

(2) Cytochrome bc₁ ^{IV}

(3) Succinate dehydrogenase ^{II}

(4) Cytochrome c oxidase ^{IV}

