

Ecology

(101) - ① - National Park - for insitu conservation.

Photosynthesis

(102) - ④ - CO_2 Acceptor in C_4 -Plant is PEP and RUBISCO is found in mesophyll cell

(R.F.P.) (103) - ② - Crosshopper having XO type of sex determination

Anatomy (104) - ④ - In old tree the ~~central~~ central dark region is called the heartwood
It consists of non conducting cell elements

of xylem (vessels) with heavy deposition of lignin, invaded by tyloses, deposition of sec. metabolite like resins, tanins etc.

Transport in Plant

105 - ② - Apoplast pathway - movement through cell wall which is continuous throughout the plant except in some part like Casparian strips in the roots.

Therefore it cannot be aided by cytoplasmic streaming and cannot occur through plasmodesmata.

Biotech
* 106 - (1) is correct

In the cloning vector pBR322 the gene encoding for resistance to antibiotics such as ampicillin are considered as selectable marker. These markers are used to identify and elimination non transformants and permit the growth of transformants in media containing antibiotic like ampicillin.

Biotech
* 107 - (2) - is correct.

After performing gel electrophoresis the separated DNA fragments are stained by ethidium bromide which gives bright orange colour upon exposure to U.V rays.

After that separated DNA fragment are extracted from the gel by a process called elution.

Mineral nutri

plant growth
108 - (1) E.H.

Respiration
109 - (3) Fe

as can
energy

It is

Anatomy
110 - (2) - In
bonus

are con

Cambium

- In a

Cambium

and phlo

growth.

plant growth.

108 - (1) Ethylene - is gaseous plant growth regulator.

Promote root growth and root hair formation to increase the absorption area.

Respiration

109 - (3) Fermentation -

Anaerobic respiration

It is lactic acid and Alcoholic fermentation.

as compare aerobic and anaerobic respiration energy is 18:1

It is less than 7% of glucose

Anatomy

110 - (a b c d e correct)

bonus - In monocot stem vascular bundle

are conjoint and closed (without cambium)

- In open vascular bundle a layer of cambium will be present b/w the xylem and phloem thus they show secondary growth.

* - The protoxylem - closest to centre of the stem

The stems of seed plants typically have endarch development

- In monocot root are

- Radial
- Polyarch
- Exarch

Large number (more than 6) of

Xylem.

- Radial vascular bundle found in monocot + dicot.

* (11) - (2) b c d e only

morphology

Axillary bud are modified into thorns in citrus and Bougainvillea.

so a is incorrect and all are correct except (a).

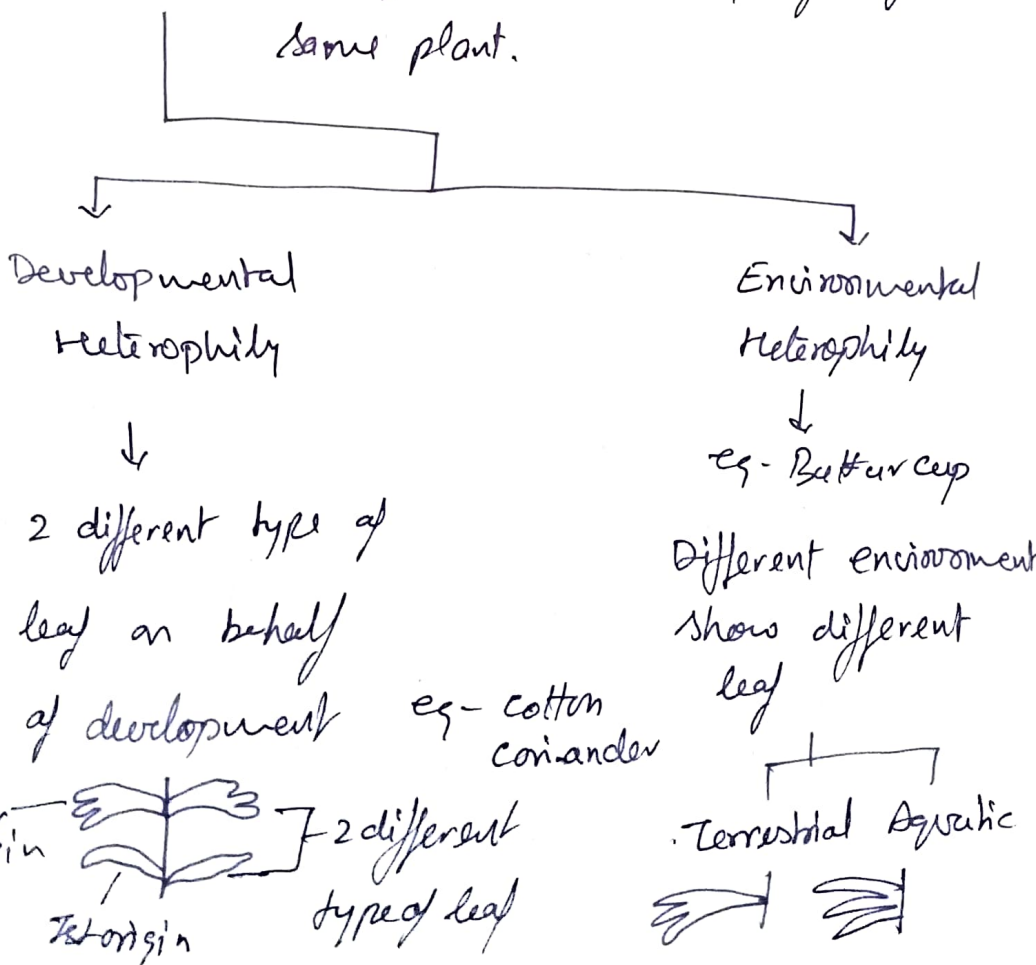
Plasticity - Development depends on

Various environmental factor

Plant can show different behaviour on the basis of change condition known as Plasticity.

Example -

Heterophily - Different morphology of leaf in same plant.



S.R.P.P
* 113-(4) Cleistogamous flower -

- Do not open at all.
- Always exhibit autogamy.

Chasmogamous flower

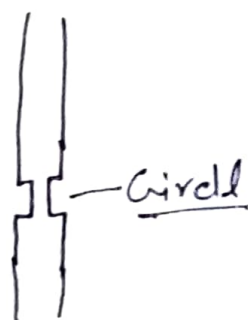


Exposed anther and stigma.

So Both statement is correct

Anatomy.

* 114 - Girdling experiment / Ringing expt



Remove bark

- Experiment demonstrates that the phloem is responsible for translocation of food b/c phloem is present outside the xylem.

* xylem not affected

115 - (2) ^{Algae}

Carrageen is a sulfated polysaccharides that obtain from Red algae. or Rhodophyceae.

Genetics

116 - (4) Both statement are correct

Mendel take 7 pair contrasting trait in pea plant and proposed law of inheritance.

Plant growth

117 - (2)

Ethylene - It involve in stamen development inhibition in σ cucumber flower by DNA damage.

Genetics

118 - (4) when small subunit of ribosome join to m-RNA for Translation.

Ecology

119 - (2) All are cause of biodiversity loss

all
120-① a, c, d correct only.

Heterochromatin -

- Highly condensed
- Gene poor
- Transcriptionally inactive

Euchromatin -

- Less condensed or loosely packed
- Gene rich
- Transcriptionally active.

Nucleosome - Histone protein ~~(+vely)~~

(+vely charge) is wrapped by

-vely charged DNA.

- Histone rich in

- Lysine
- Arginine

Nucleosome contain - 146 b.p of DNA

helix

Algae
121 - (1)

incorrect is -

Ulothrix belong to green algae and have starch as reserve food material.

Manitol is a type of food present in

Phaeophyceae K/a Brown algae

Environmental issue

122 - (2)

Electrostatic precipitator

↓

Use for removal of particulate matter present in the exhaust from thermal power plant.

Incinerator - it is furnace for burning waste

Catalytic converter - use in motor bike + car

STP - Sewage ~~for~~ treatment Plant

Biotech (Z)
123 - (2)

DNA Polymorphism - use in Genetic

mapping & DNA fingerprinting.

- The presence of 2 or more variant forms of a specific DNA sequence that can occur ~~124~~ among different individual / population.

Ecology

124 - (2) Both species are negatively impacted

Predation - one organism - the predator
kill and eats another organism; its

prey

cell division

125 - (2)

- Pairing of homologous chromosome found only in meiosis. which is known as synapsis.

Zoology

126 - (2)

Exoskeleton is ~~made up~~ made up of chitin.

Respiration

127 - (2)

In glycolysis total ATP form is four but 2 are utilized and only 2 are remain so net gain is 2 ATP.

Morphology

128 - (1)

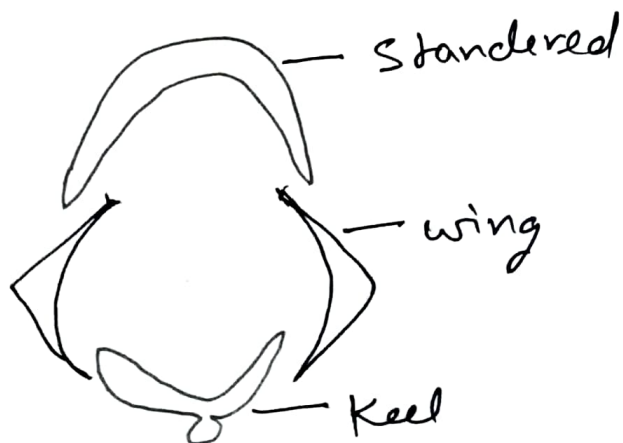
Pisum sativum - (Pea) Plant have vexillary aestivation

Allium cepa

↓
onion

Solanum nigrum

makoi



Ecology
129 - (3)

Moth and butterflies are not a most dominant pollinating agent. Honey bee is most dominant pollinating agent. Approx 80% pollination (insect) by Honey bee.

Environmental Issue

130 - (2) - Decomposition is slower if debris is rich in $\begin{cases} \text{Lignin} \\ \text{chitin} \end{cases}$

Decomposition is faster when debris is rich in $\begin{cases} \text{Nitrogen} \\ \text{H}_2\text{O soluble substance like sugar.} \end{cases}$

cell division

131 - (2)

Recombination nodule -

It is proteinaceous substance found within the synaptonemal complex during Prophase I of meiosis (Zygotene)

mineral nutrition

132 - (+)

- molecular nitrogen cannot be utilized directly by plants
- Symbiotic nitrogen fixation by *Rhizobium* in leguminous plants.
- Some non leguminous plants like Alnus also forms nodules to fix nitrogen.
- *Frankia* (Actinomyces) form nodule in *Alnus*.
(Bacteria)

Photosynthesis

133 - (+) 2, 3, 4 are true but + is incorrect

Breakdown of electron gradient is not

Reform in chemiosmosis.

electron transport system are found in

Noncyclic photophosphorylation.

Morphology

134-(1) example of zygomorphic flower is
Gulmohar and cassia

NCERT - Page No - 72
11th

it is divided equal half by only one
plane.

mineral nutrition

135 - (1)

NCERT
11th

Page No - 197
198

manganese - (iv) $H_2O \xrightarrow[Mn^{+2}, Ca^{+2}, Cl^-]{} 2H + 2e^- + \frac{1}{2}O_2$

magnesium - Activates enzyme for
respiration (In glycolysis)

Boron - Required for Pollen germination

Iron - Activates the enzyme catalase

Section - B

Transport in Plants

136 - (1)

NCERT - 11th

Page No - 179, 180

In a solution when added solute
than Potency of H_2O will
decreases. (when $H_2O \uparrow = \psi_w \uparrow$)

Gingly
→ Oil - has lower melting point so
remain as oil in winter.

- Lipid is insoluble in H_2O
↓
soluble in organic solvents.

- when fatty acid is esterified
with glycerol, monoglycerides.

- Fatty acid saturated without = bond
↓
unsaturated with one or more
C=C double bond

- Lecithin is found in cell membrane / P.M
as phospholipid not in form of
glycolipid

138 - (1)

NCERT

11th

Page No -

218

- Role of large bundle sheath cell in C-4-Plant is to increase the number of chloroplast for the operation of calvin cycle.

139 - (1)

NCERT

Page No - 272-273

- CNG burn more efficiently unlike petrol + diesel, in the automobile and very little of it is left unburnt. Moreover CNG is cheaper than petrol/diesel.

140 - (1)

NCERT -

No

- It is a genetic tool
- It is used ~~to~~ during gene silencing.
Prevent the transcription of a particular area of DNA.
- which help to maintenance of genome.

141 - (4)

N.C.E.R - 11th
chap - Cell
Page - 139

chromosome classified - on the basis of
Position of centromere.

It is 4 type

Metacentric chromosome



- chromosome have middle centromere
- 2 ~~eq~~ equal arm.

Acentric chromosome -



Centromere situated close to the end
forming one extremely short and one very
long arms.

Submetacentric chromosome



centromere slightly away from the middle forming one shorter arm and one longer arm.

Telocentric chromosome.



~~Telo~~. Centromere at terminal end.

Spirogyra - Dominant haploid free living
gametophyte not dependent on
sporophyte

Fern - Dominant $2n$ sporophyte
alternating with reduced gametophyte
called prothallus:

~~Funaria~~
Cycas - $2n$ sporophyte dominant
with highly reduced σ^7
or γ gametophyte.

~~Cycas~~ -

Funaria - Dominant haploid leafy
gametophyte alternating with
Partially dependent multicellular sporophyte

143 - (1)

NCERT - 12th

chap - Genetics - I

Topic - Disorder

Page No - 89, 90, 91

myotonic dystrophy - is part of a group of inherited disorder

called muscular dystrophies.

begins - in adulthood.

It is due to - presence of autosomal linked dominant trait.

144 - (1)

NCERT - 11th.

chap - Anatomy

Topic - wood

Page - No -

↓
96 (6.4.1.3)

b is wrong. and all are correct

In spring season Cambium is very active and produce large number of xylem elements. and having vessels with wider cavities. Narrow vessel found in winter.

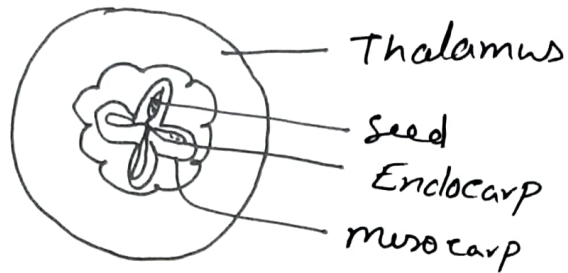
145 - (2)

NICERT - 12th

Chap. Morphology

Page-No - 37

Sexual reproduction in flowering plant



It is a figure of apple

c is denoted as thalamus.

Thalamus participati in formation of fruit so called false fruit.

Zoology -

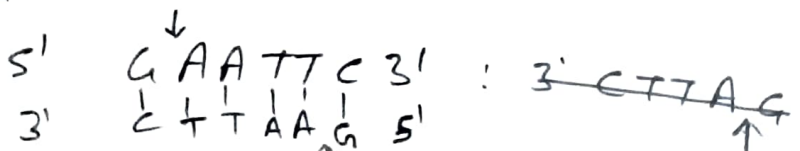
$$\underline{146} - (1)$$

NCERT - 12th

Chap- Biotech- Principle + process

Page - 196-197

Restriction endonuclease cut the strand of DNA a little away from centre of the palindrome site. but between the same 2 bases on the opposite strand.



G
|
C T T A A

A A T T C
|
G

Form sticky end.

147 - (4)

NCERT - 12th

chap - organism & population

Page - 232

Predation - (+ -)

one species benefited

and one harmed.

148 - (2)

NCERT - 12th

Page - 254

chap Ecosystem

weathering of rocks accelerates phosphorus cycle. it is base material

149 - (2)

NCERT - 12th

Page - 80

chap. Genetic - 7

when 2 pair of trait combined in a hybrid segregation of one pair of characters is independent of the other pair of character.

Reason false

Gene assort independently is not
closely related.

ISO - NCERT-12th
Page NO- 119

Gene mapping - method used to
identify the locus of a gene and
distance between genes.