

Standard : XII

Biology Reg. No.

B303

Time : 3 Hrs

Model Test (Full Portion)

Marks : 70

Instruction : Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.

Note : Draw diagrams and write equations wherever necessary

PART - I (BIO-BOTANY)

(Marks:35)

I. Note: i) Answer all the questions.

ii) Choose the most appropriate answer from the given four alternatives and

write the option code and the corresponding answer

8 x 1 = 8

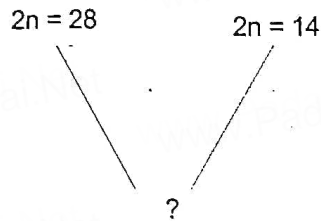
1. A plant called 'X' possesses small flowers with reduced perianth and versatile anther. The probable agent for pollination would be
 a) Water b) Air c) Butterflies d) Beetles *Book Back*
2. Match the following
- | | |
|--------------------|----------------------------|
| I. P.Maheswari | - i) Polyembryony |
| II. G.B.Amici | - ii) Insect pollination |
| III. E.Strasburger | - iii) Indian embryologist |
| IV. J.G.Kolreuter | - iv) Pollentube |
- a) I - iv, II - iii, III - i, IV - ii b) I - i, II - iv, III - ii, IV - iii
 c) I - iii, II - iv, III - i, IV - ii d) I - ii, II - i, III - iv, IV - iii
3. In order to find out the different types of gametes produced by a pea plant having the genotype Aa Bb, it should be crossed to a plant with the genotype
 a) aa BB b) Aa BB c) AA BB d) aa bb *Book Back*
4. Which of the following statements are correct?
 1) The offspring exhibit only parental combinations due to incomplete linkage
 2) The linked genes exhibit some crossing over in complete linkage
 3) The separation of two linked genes are possible in complete linkage
 4) Crossing over is absent in complete linkage
 a) 1 and 2 b) 2 and 3 c) 3 and 4 d) 1 and 4. *Book Back*
5. Which enzyme is called molecular scissor?
 a) Alkaline phosphatase b) DNA ligase
 c) Polymerase d) Restriction endonuclease
6. Good example for suitable fusogen is
 a) Polyethylene Glycol b) Agar
 c) Poly ether glycol d) Nicotinic Acid
7. Spindle shaped ecosystem is seen in
 a) Grassland eco ecosystem b) Forest ecosystem
 c) Pond ecosystem d) Parasite ecosystem
8. Queen of spices is
 a) Cardamom b) Turmeric c) Black pepper d) Chillies

II. Note: i) Answer any Six questions.

4 x 2 = 8

9. "The endosperm of angiosperm is different from gymnosperm" - Do you agree. Justify your answer.
10. What is meant by Heterosis vigour.
11. Define 'SCP'. Give an example.

12. Triticale is a hexaploid. How will you derive F1 hybrid from the following parent?
Parent Triticum durum X secale cereale



13. Draw the structure of pitcher plant and label the parts
14. Mention the affect of Green house gase?
III. Note: i) Answer any three of the following Questions
ii) Question No. 19 is compulsory.

3 x 3 = 9

15. a) What are bio-fertilizers?
b) Write short notes on N_2 fixing bio fertilizer
16. Draw the structure of ovule and label the parts.
17. Explain the Linkage.
18. What is role of Agrobacterium tumefaciens in gene transfer
19. Draw a pyramid from following details and explain it briefly quantities of organisms are given
Hawks - 50, Plants - 1000, rabbits and mouse - 250+250, Pythons and lizard- 100+50 respectively

- IV. Note: i) Answer all the Question in about a page

2 x 5 = 10

20. a) i) What is cross pollination?
ii) What are the advantages of cross pollination
iii) Describe pollination in Salvia
(or)
b) Describe in complete dominance with an example.
21. a) Write basic principle of tissue culture.
(or)
b) i) Mention the devices of seeds for the dispersal of animals
ii) What are the advantage of seed dispersal.

PART - II (BIO-ZOOLOGY)

(Marks:35)

- I. Note: (i) Answer all the questions. 1 x 8 = 8
(ii) Choose the most appropriate answer from the given four alternatives a write the option code and the corresponsing answer.

- All Population in a given physical area are define as
a) Biome b) Ecosystem c) Territory d) Biotic factors
- Organisms which can survive a wide range of temperature are called
a) Eclotherms b) Eurytherms c) Endotherms d) Slenotherms
- Competition between species leads to
a) Extinction b) Mutation c) Amensalisen d) Symbiosis
- Which of the following is an r-species
a) Human b) Insets c) Rhinoceros d) Whale
- Predation and parasitism are which type of interactions
a) (+, +) b) (+, 0) c) (-, -) d) (+, -)

6. Allergy involves
 a) I_gE b) I_gG c) I_gA d) I_gm
7. Spread of cancerous cells to distant sites is termed as
 a) Metastasis b) Oncogenes c) Proto-oncogenes d) Malignant neoplasm
8. The age of fossils can be determined by
 a) Electron microscope b) Weighing the fossils
 c) Carbon dating d) Analysis of bones

II. Note i) Answer any Four Questions.

4 x 2 = 8

9. What is Ex-situ conservation.
10. Mention the cause of enhanced use of ultraviolet radiation.
11. Define ecological niche.
12. What is Acc linatisation
13. List out the major gases seems to be found in the primitive earth
14. Notes on Mesozoic erg.

III. Note: i) Answer any three of the following Questions

3 x 3 = 9

15. Expand the acronyms
 a) FSH b) LH c) hCG d) hPL
16. Draw a labelled sketch of a spermatozoan.
17. Mention the symptoms of phenylketonuria.
18. Differentiate Intersexes from super sexes
19. Explain male heterogamety

IV. Answer all the Question in about a page

2 x 5 = 10

20. a) List the common withdrawal symptoms of drugs and alcohol abuse
 (or)
 b) Why do you think it is not possible to produce vaccine against 'common cold'?
21. a) How does forest conservation help to reduce air pollution?
 (or)
 b) Write a note on
 i) Protected areas
 ii) Wild life sanctuaries
 iii) WWF

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12th Biology

Bio - Botany

Public Exam - 2022

Full Portion model Test

Part - I

Answer all the questions

1. (b) Air

2. (c) i - iii, iv, v, vi, vii

3. (d) aabbcc

4. (c) 3 and 4

5. (d) Restriction endonuclease

6. (a) Polyethylene Glycol

7. (b) Forest Ecosystem

8. (a) Caradamon

Part - II

9. The endosperm of angiosperm is different from gymnosperm -

Do you agree. Justify your

Answer

Yes, I agree Endosperm of angiosperm is different from gymnosperm because Angiosperm plant endosperms are formed during fertilization but in gymnosperm plant endosperms are formed before fertilization.

So Angiosperm plant endosperms are triploid (3n) and gymnosperm plant endosperms are haploid (n) condition.

10) what is meant by heterosis vigour.

The superiority of the F_1 hybrid performance over its parents is called heterosis vigour.

11) Define SCP Give an example

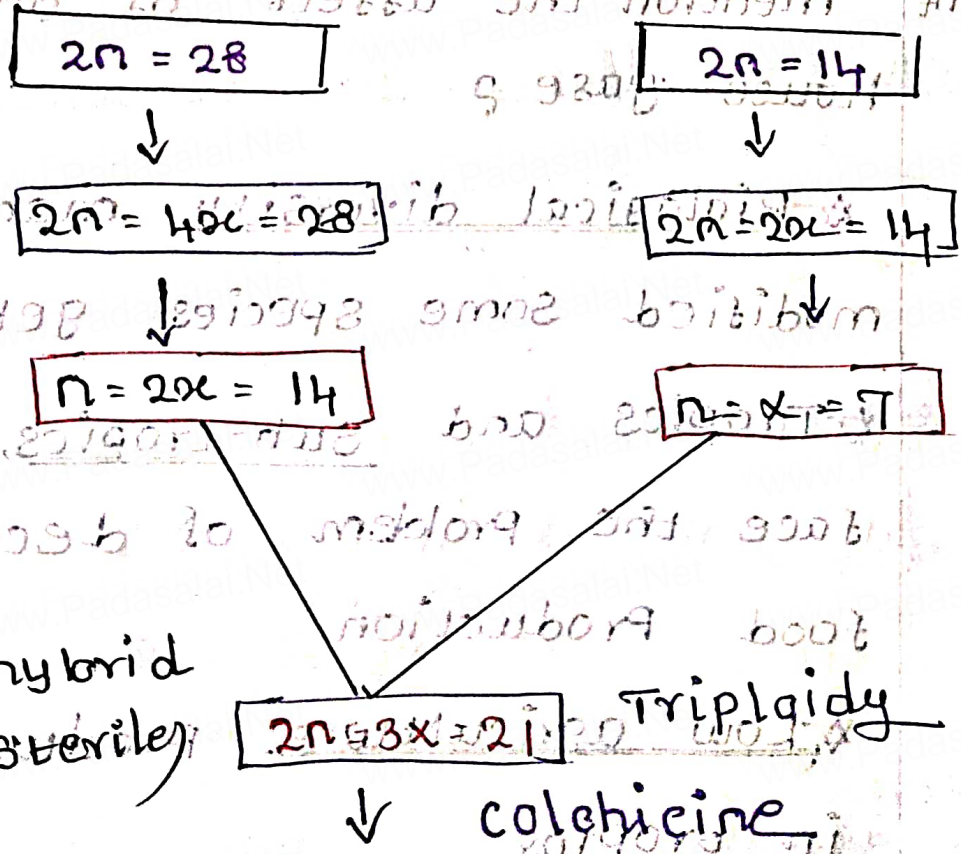
Single cell proteins are dried cell of microorganism that are used as protein supplement in human foods or animal feeds

Bacteria - Methylophilus

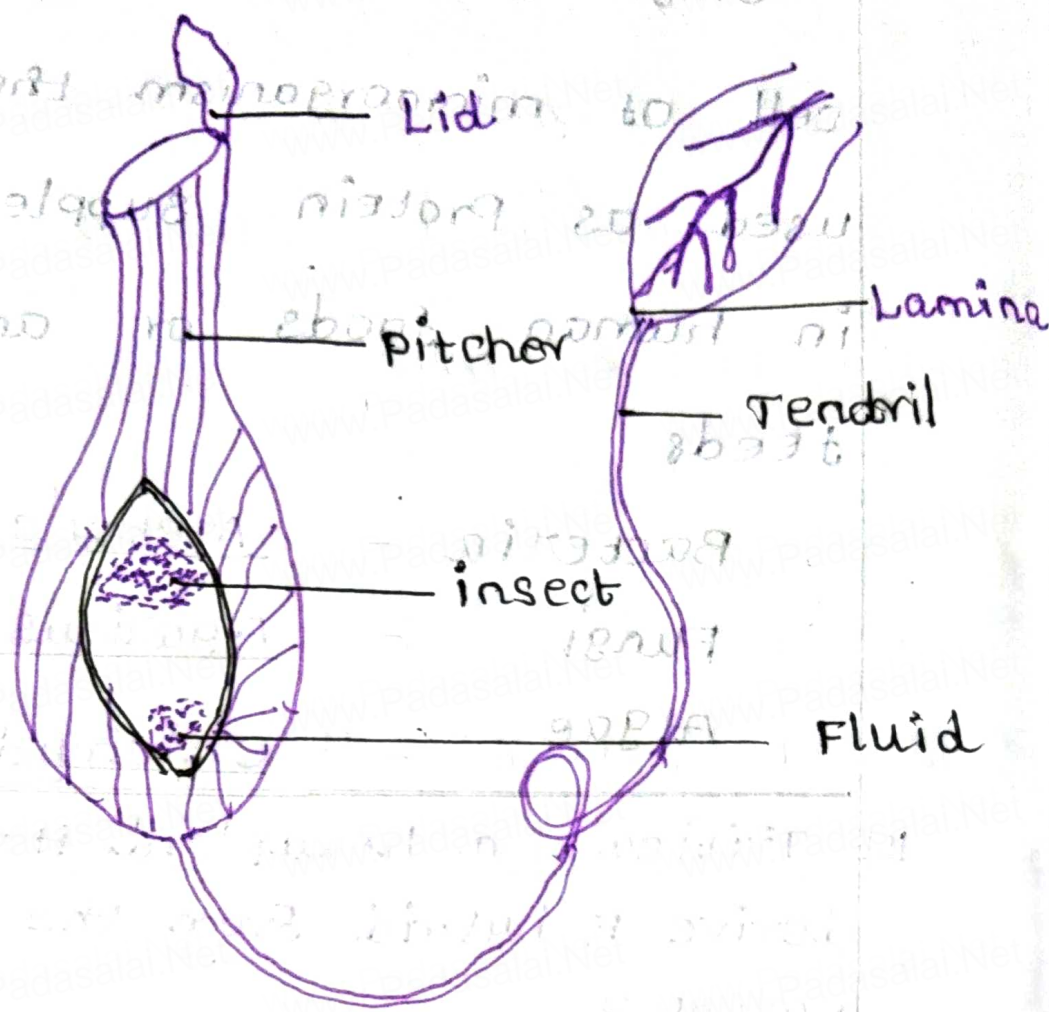
Fungi - Agaricus

Algae - Chlamydomonas

12) Triticale a hexaploid. How will you derive F₁ hybrid from the following parent?



13. Draw the structure of Pitcher plant and label the parts.



14. mention the affect of Green house gas ?

- ★ Biological diversity, many get modified some species get redefined
- ★ Tropics and sub-tropics, may face the problem of decreased food production.
- ★ Low agriculture productivity in tropics

Part - C

15 (a) what is Bio-fertilizers ?

(b) write short notes on N_2

fixing Bio-fertilizers

Bio-fertilizers Preparations

Containing living cells (i) Latent cells of efficient strains of microorganisms. that help crop plant uptake of nutrients by their interactions in the rhizosphere when applied through seed (ii) soil

Freeliving.

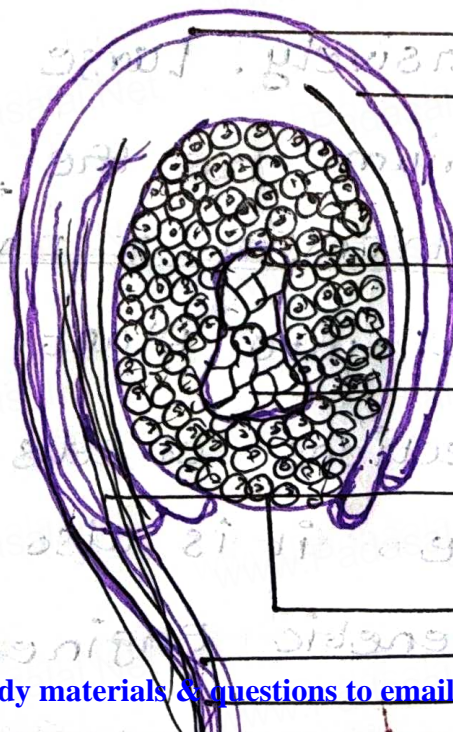
Symbiotic

Associative symbiotic

Rhizobium

Azospirillum

16 ovule structure



chalazal end

integuments

nucellus

Embryosac

hilum

micropyle

Raphe

17. Explain the linkage

The genes which determine the character of an individual are carried by the chromosomes.

The genes for different characters may be present either in the same chromosomes or in different chromosomes.

tendency of gene to stay together during separation of chromosomes.

Linkage

18. What is role of *Agrobacterium tumefaciens* in gene transfer.

Agrobacterium tumefaciens has been used extensively. Large size plasmid

This bacterium has the natural ability to transfer T-DNA region of

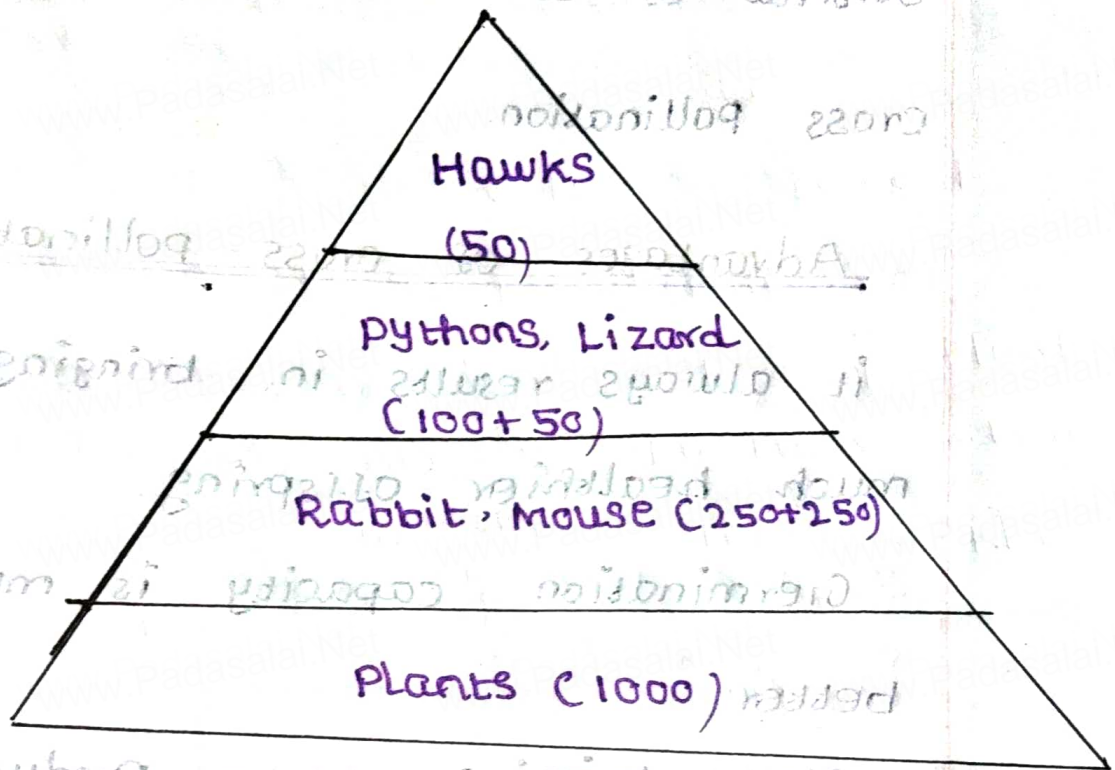
its plasmid into plant genome

upon infections of cells at the wound site, it is also known as

natural genetic engineer of

19. Draw a pyramid following details

and explain in brief. quantities of organisms given - Hawks - 50, plants - 1000, rabbit mouse - 250 + 250, pythons and lizard - 100 + 50 respectively



The number of organisms present in each successive trophic level of ecosystem is called number pyramid. In this pyramid, gradually, decreasing the number of organisms from Producers to tertiary consumers level. Hence, pond and grassland

Ecosystem pyramids are always

Part - V

20 (a) What is cross pollination
Transfer to the pollens on the
Stigma of another flower

Cross Pollination.

Advantages of cross - pollination

it always results in bringing out
much healthier offspring

Germination capacity is much
better.

New varieties maybe produced

Describe pollination in salvia.

During the entry of the bee into the
flower the body strikes against the
sterile end of the connective. This
makes the fertile part of the
stamen to descend and strike
at the back of the bee.

(b) incomplete dominance - no blending of genes

when one allele is not completely dominant to another allele it shows incomplete dominance.

$R_1 R_1$ (Red) $R_2 R_2$ (white)

P generation

$R_1 R_2$ (selfed)

intermediate

Phenotype Pink Heterozygote

$R_1 R_2$

R_1	$R_1 R_1$	$R_1 R_2$
R_2	$R_1 R_2$	$R_2 R_2$

incomplete dominance in 4 o'clock plant F_2 generation

$R^1 R^1 : R^1 R^2 : R^2 R^2$

1 : 2 : 1

(21)

(a) write basic principle of www.Padasalai.Net

tissue culture

(i) Sterilization

- maintenance of Aseptic Environment
- Sterilization of culture room
- Sterilization of nutrient media

(ii) Media Preparation.

(iii) culture conditions : pH, Temperature

Humidity and Light Intensity

(iv) Aeration

(v) Induction of callus

(vi) Embryogenesis

(b)

- ①. Increase soil erosion and water scarcity
- ②. Reduce rainfall and soil fertility
- ③. Reduce O_2 level in atmosphere
- ④. Increase atmospheric temperature and global warming
- ⑤. Deforestation leads to the formation of deserts