



# BIOLOGY

## BOOKS - SARAS PUBLICATION

### QUESTION PAPER 2020

#### Exercise

1. Solar energy used by green plants for photosynthesis is only

A. 2-9%

B. 2-8%

C. 2-10%

D. 3-10%

**Answer:**



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2. Assertion (A): Arabidopsis plant chromosome have more repeats of TTTAGGG nucleotide sequence in the telomers.

Reason (R ): Restriction endonuclease enzyme is used in the formation of such a nucleotide sequence.

A. (A) is incorrect, (R ) is correct

B. (A) is correct, (R ) is the correct explanation of (A)

C. (A) is correct, (R ) is the incorrect explanation of (A)

D. (A) and (R ) are wrong

**Answer:**





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3. Which one of the activities is replacement of conventional electrification projects with solar panels or other energy efficient boilers?

- A. Clean Development Mechanism (CDM)
- B. Chloro Fluoro Carbon (CFC)
- C. Certified Emission Reduction (CER)
- D. Tamil Nadu Afforestation Project (TAP)

**Answer:**



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4. Which one of the following selection method takes longer time in bringing about desired variation?

- A. Clonal selection
- B. Mass selection
- C. Pure line selection
- D. Natural selection

**Answer:**



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5. Which creates a breeding habitat for disease causing mosquito Anopheles?

A. *Eichhornia crassipes*

B. *Latana camara*

C. *Prosopis juliflora*

D. *Parthenium hysterophorus*

**Answer:**



6. \_\_\_\_\_ is a rice variety with saline tolerance and pest resistance.

- A. Wild-type rice
- B. Atomita-2
- C. Dwarf rice variety
- D. Golden rice

**Answer:**



7. Pick out the correct pair:

- |                |   |                               |
|----------------|---|-------------------------------|
| a) Oxylophytes | - | Plants living in ice surface  |
| b) Hollard     | - | Total soil water content      |
| c) Chresard    | - | Water not available to plants |
| d) Echard      | - | Water available to plants     |



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8. When closely placed genes on the same chromosome are inherited together the phenomenon is called

A. linked genes



B. unlinked genes

C. syntenic genes

D. transgenes

**Answer:**



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**9. Chillies are a good source of:**

A. Vitamin A, C and E

B. Vitamin K

C. Vitamin D

D. Vitamin B complex with Vitamin D

**Answer:**



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**10.** From the following secondary metabolites which one is used as cardiac tonic?

A. Capasaicin

B. Quinine

C. Codeine

D. Digoxin

**Answer:**



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**11. Which plant is commonly known as king of Bitters**

A. Nilavembu

B. Holy basil

C. Adathodai

D. Turmeric

**Answer:**



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**12.** What are bio degradable polymers? Give examples.

A. Cry 1 Ac and DMH - 11

B. PHAs and PHB

C. GFP and PGA

D. DMH and HT

**Answer:**



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**13.** From the following which one is the column of sterile tissue surrounded by the anther lobe:

A. periplasmodium

B. pollen chamber

C. connective tissue

D. tapetum

**Answer:**



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**14. Match the following:**

- |                        |             |
|------------------------|-------------|
| 1) Dominant epistasis  | (i) 9:7     |
| 2) Duplicate genes     | (ii) 12:3:1 |
| 3) Recessive epistasis | (iii) 15:1  |
| 4) Complementary genes | (iv) 9:3:4  |

A. 1-iv, 2-I, 3-ii, 4-iii

B. 1-ii, 2-iii, 3-iv, 4-I

C. 1-I, 2-ii, 3-iii, 4-iv

D. 1-iii, 2-iv, 3-ii, 4-I

**Answer:**



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**15.** Among the pea plant cell which one has the ability to convert a precursor molecule into an active form?

A.  $Le:le$

B.  $GA_1$

C.  $Le$

D.  $le$

**Answer:**



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**16.** What are parthenocarpic fruits?



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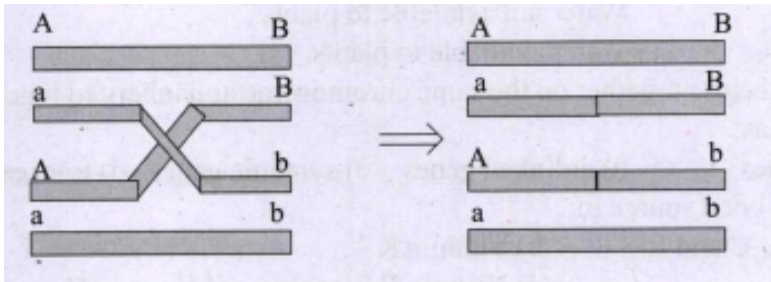


17. What is gene interaction?



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18. Which type of crossing over is mentioned in the above diagram?



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**19.** Recombination frequency (RF) is equal to



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**20.** Write notes on bioremediation.



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**21.** What is called Somatic Hybridization?



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**22.** Which method is involved in the removal of cadmium from the contaminated soil? Define with example.



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**23.** The pyramid of biomass of this ecosystem is always inverted



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**24.** What are the benefits of seed treatment?



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**25.** Which one of the chemical substance is responsible for the yellow colour in turmeric?  
Mention the uses of that chemical substance.



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**26.** Draw the structure of T.S. of mature anther and label its parts.



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**27.** Explain the three kinds of plants that have recessive lethal gene in *Antirrhinum* sp.



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**28.** Write the differences between linkage and crossing over.



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**29.** What are the features which requires to facilitate cloning in a vector?



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**30.** Write the application of somatic embryo genesis?



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**31.** What is thermal stratification? Mention their types.



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**32.** Generally the pyramid of number in forest ecosystem looks spindle shape. State your reason.



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**33.** What are the uses of Remote Sensing?



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**34.** Mention the three main types of artificial selection method and explain one of the methods.



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**35.** Explain the different types of Ovules with suitable diagrams.



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**36.** Describe dominant epistasis with an example.



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**37.** What is Point Mutation? Explain various types of Point Mutation.



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**38.** What do you mean by Biopiracy? Explain Biopiracy in Neem and Basmati Rice.



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**39.** Write the application of plant tissue culture.



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**40.** What are epiphytes? List the morphological adaptations seen in epiphytes.



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**41.** Write the steps involved in the mechanism of decomposition.



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**42.** Write the effects of ozone depletion.



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**43.** Mention the various modern methods of seed protection.



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**44.** How will you prepare an organic pesticide for your home garden with the vegetables available from your kitchen ?



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**45.** Virus free plants are developed from

A. Cell suspension culture

B. Organ culture

C. Meristem culture

D. Protoplast culture

**Answer:**



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**46.** Some of the major species cultivated in Agroforestry for commercial use:

- A. Erythrina, Albizzia
- B. Malaivembu, Kadambu
- C. Acacia, Azodirachta indica
- D. Sesbania, Acacia

**Answer:**



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47. If a homozygous red flowered plant is crossed with a homozygous white flowered plant then the following will be:

- A. All red flowered
- B. Half white flowered
- C. Half red flowered
- D. All white flowered

**Answer:**



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**48.** Match the following:

1. Stenobathic	(i) Salinity
2. Stenoecious	(ii) Depth of water/habitat
3. Stenohaline	(iii) Food
4. Stenophagic	(iv) Habitat selection

A. I-iv, II-I, III-iii, IV-ii

B. I-iii, II-I, III-ii, IV-iv

C. I-ii, II-I, III-iv, IV-iii

D. I-ii, II-iv, III-i, IV-iii

**Answer:**



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49. First cell of male gametophyte in angiosperm is

A. Primary endosperm

B. Microspore

C. Megaspore

D. Nucleus

**Answer:**



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50. Which is frequently used as reporter of expression?

A. GMF

B. Circular protein

C. GFP

D. PLA

**Answer:**



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51. The Ozone layer of troposphere is called:

A. Middle Ozone

B. Ozone Shield

C. Bad Ozone

D. Good Ozone

**Answer:**



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52. Name the plant which is pest resistant and saline tolerant:

A. Sonalika

B. Triticale

C. Raphanobrassica

D. Atomica-2

**Answer:**



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**53.** *Saccharomyces cerevisiae* is more suitable for the production of recombinant interferons than *E. coli*. The reason is.

A. *E. coli* cannot be used in biofermentor

B. *E. coli* does not have suitable plasmid for the production of proteins

C. *E. coli* does not have the machinery for glycosylation of proteins

D. *E. coli* is not easily available for the production of proteins

**Answer:**



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**54.** Which one of the following is true to gastrulation?

A. Formation of multicellular structure from zygote

B. Formation of specific organs from germ layers

C. Formation of three germ layer embryo  
from single layer embryo

D. Attachment of blastocyst to the uterine  
wall

**Answer:**



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**55.** Identical twins are produced when the following condition is satisfied:



- A. Two sperms are fertilized one egg
- B. Two sperms are fertilized two eggs
- C. One sperm is fertilized two eggs
- D. One sperm is fertilized one egg

**Answer:**



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**56.** ELISA is mainly used for

- A. Selecting, plants having desired traits

B. Detection of mutations

C. Detection of pathogens

D. Selecting animals having desired traits

**Answer:**



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**57. Assertion (A):** Genetically engineered Bt-cotton is disease resistant type.

**Reason (R):** Cry-toxin produced in the plant has specific activities against free living fungi.

A. Both (A) and (R ) are true, but (R ) does not explain (A)

B. (A) is wrong, (R ) is correct

C. Both (A) and (R ) are wrong

D. (A) is true but (R ) is wrong

**Answer:**



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**58.** Which one of the following are at high risk extinction due to habitat destruction?

A. Echinoderms

B. Mammals

C. Birds

D. Amphibians

**Answer:**



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**59.** What is the difference between the sugars of DNA and RNA?

A. One oxygen atom excess in deoxyribose sugars

B. One oxygen atom less in ribose sugars

C. Two oxygen atoms less in ribose sugars

D. One oxygen atom less in deoxyribose sugars

**Answer:**



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## Example

1. Define Cybrid.



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2. Write any four uses of Seedball.



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3. The objectives of clean development mechanism are



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4. Give definitions for organic farming.



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5. Write the Binomial name and family of Nilavembu. Write any one of its uses.



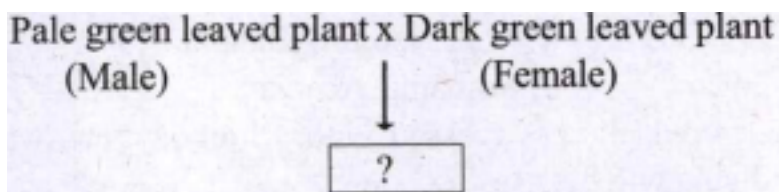
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6. Name the enzymes involved in genetic engineering.



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7. In 4 o'clock plant



Explain

the type of inheritance.





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8. What is  $p^{BR322}$

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9. What is greenhouse effect ? Explain.

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10. Give an account on cryopreservation.



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**11.** Write the three differences between Habitat and Niche.



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**12.** Explain the types of entry of pollen tube into the ovule.



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**13.** What is gene mapping? Write its uses.



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**14.** How to protect the ecosystem?



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**15.** Ramu and Somu are farmers. Ramu cultivated the crops by self fertilization method. Somu cultivated the crops from

mixed population.

Who will get new variety?



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**16.** Ramu and Somu are farmers. Ramu cultivated the crops by self fertilization method. Somu cultivated the crops from mixed population.

Write the advantages and disadvantages of their selection.



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**17.** What is ovulation?



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**18.** Write the causes of Down's Syndrome.



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**19.** What are Operons? How many operon groups are present in E.coli?





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20. Point out the differences between active and passive immunity .



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21. Which is referred to as industrial alcohol?  
Why?



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22. What is the most important application of human stem cells?



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23. What is "Let - Down" reflex?



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24. Write a note on "Amniocentesis".



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**25.** Name the hormone secreted by Thymus gland and mention two functions of that hormone.



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**26.** Write a note on gene banks.



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**27.** A character present in grandfather goes to grandson through daughter. Draw flowchart for this pattern of Inheritance.



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**28.** Write about the methodologies of HGP.



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**29.** Write short notes on:

Population Density



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**30.** Write short notes on:

Natality and Mortality



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**31.** Write about the effects of chemicals used in the field of Agriculture.



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