



BIOLOGY

BOOKS - SRIJAN BIOLOGY (ENGLISH)

STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION

Illustrative Questions

1. Present day crops are different from their wild ancestors. Why?



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2. The wild varieties of plants prefer to have thorns, spines, fibres and bitterness. Why?



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3. Why is hybrid vigour best maintained in vegetatively propagated crops?



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4. What is the requirement to develop artificial seeds when natural seeds are available in ample amount?



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5. Why are most of the mutations not expressed?



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6. What is Green revolution?



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7. What is gene plantation?



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8. What part of plants is best suited for making virus-free plants, and why?



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9. Millions of chickens were killed in West Bengal, Assam, Odisha and Maharashtra recently. What was the reason?



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10. Can gamma rays used for crop improvement programmes prove to be harmful for health? Discuss



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11. In animal husbandry, if two closely related animals are mated for a few generations, it results in loss of fertility and vigour. Why is this so?



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12. In the area of plant breeding, it is important not only to preserve seeds of the variety being cultivated, but also to preserve

all its wild relatives. Explain with suitable example.



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13. Give two important contributions of Dr. M.S. Swaminathan



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14. The term 'desirable trait' can mean different things for different plants. Justify the

statement with suitable examples.



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15. Explain the concept of the Blue Revolution



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16. Lifestyle diseases are increasing alarmingly in India. We are also dealing with large scale malnutrition in the population. Is there any

method by which we can address both of these problems together?



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17. What is meant by germplasm collection?

What are its benefits?



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18. It is easier to culture plant cells in vitro as compared to animal cells. Why?



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19. The culture medium nutrient medium can be referred to as a highly enriched laboratory solid. Justify the statement



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20. "Give me a living cell of any plant and I will give you a thousand plants of the same type". Is this only a slogan or is it scientifically

possible? Write your comments and justify them.



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21. What is the difference between a breed and species? Give an example for each category.



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22. Discuss natural selection and artificial selection. What are the implications of

the latter on the process of evolution?



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23. Why do X-rays and gamma rays induce mutations?



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24. Why does selection only help to isolate the good genes but fail to make the gene better?



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25. Why are cross breeds of cattle more advantageous than the indigenous breeds?



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26. Which technique is commonly used to produce virus-resistant plants?



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27. Why is suspension culture constantly agitated?



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28. What is the main reason for low milk production in India? How can it be improved?



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Practice Questions A Very Short Answer Type Questions

1. Shakti, Rattan and Protina are three important lysine-rich varieties of



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2. Who started plant tissue culture technique?



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3. What is the use of colchicine?



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4. Name fungi used for the production of SCP.



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5. What is a somatic embryo?



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6. What is somaclonal variation?



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7. Name two disease-resistant varieties of crop plants.



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8. Which organisation certifies seeds for good qualities?



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9. Name two fungal diseases of crops.



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10. What is an explant?



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11. Name two main components of cattle feed.



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12. When is 'World Food Day' celebrated?



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13. Give one advantage of suspension culture over callus culture.



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14. Name two plants which have been produced by artificial selection.



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15. Give information: Worker honeybee: Sex and average lifespan (in weeks).



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16. State any one significance of interspecific hybridisation in plants.



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17. Who gave the concept of totipotency?



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18. Name two main methods of animal breeding



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19. Name one bacterial and viral disease of cattle





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20. Name techniques that are used in controlled breeding experiments.



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21. Give four important species of honeybee.



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22. Where is Indian Veterinary Research Institute (IVRI) located?



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23. Give one difference between milch breed and draught breed.



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24. Who is known as the father of white revolution?



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25. Expand NDDDB



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26. Give one advantage of exotic breeds over indigenous breeds of fowl.



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27. Name two indigenous breeds of fowls.



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28. Name one edible freshwater fish and one marine fish



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29. Name two pests of bees. Name vitamins obtained from fish liver oil.



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30. What are hatchlings?



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31. The mechanism that causes a gene to move from one linkage group to another is called



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Practice Questions B Short Answer Type I Questions

1. What is inbreeding? What is the danger of inbreeding?



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2. Name any two source organisms of agar. List any four areas in which agar has wide

application



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3. Why is polyethylene glycol used in somatic hybridisation?



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4. What is the source of explant in meristem culture? Mention one function of cytokinins used in meristem culture medium.



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5. What is the difference between layers and broilers?



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6. What are two types of fisheries?



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7. How are fishes helpful in controlling disease like malaria?



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8. What is gene cloning?



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9. Why is buffalo hide preferred?



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10. What is interspecific hybridisation?



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11. What are the uses of beeswax?



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12. How is bird flu controlled?



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13. How has milk yield of Indian cows been increased?



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14. What is commonly used to produce virus resistant plants?



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Practice Questions C Short Answer Type II Questions

1. What is mutation breeding? List the steps in mutation breeding to get a desired crop.



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2. What is inbreeding and interspecific hybridisation in animals? Give an example of each.



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3. What is the role of selection in crop improvement?



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4. What is plant breeding? Write any two objectives of plant breeding



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5. Describe the advantage of SCP.



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6. Give the economics of poultry farming



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7. How is artificial breeding more useful than natural breeding?



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8. List the limitation of mutation breeding.



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9. Describe the role of livestock in agricultural economy of India.



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10. What are the applications of tissue culture?



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11. What are benefits of the cattle farming?



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12. What is meant by poultry farm management?



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13. What is totipotency?



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14. What is another culture? Mention its applications.



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15. What is inbreeding? What is the danger of inbreeding?



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16. Write down the significance of embryo culture.



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17. Define germplasm. How is it maintained?



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18. What is the meaning of sterilisation? Why is sterilisation essential in tissue culture and recovery of complete plants?



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[Practice Questions](#) [D](#) [Long Answer Type Questions](#)

1. Define embryo transplantation



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2. Define totipotency. Explain two different routes of regeneration plantlets from callus culture.



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3. What is a somatic hybrid? Give one example. Explain the steps involved in the production of such a hybrid





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4. Plantlets produced in the laboratory need to be hardened before transplanting them in the field. Explain why they need to be hardened and how it is carried out.



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5. What is inbreeding? What is the danger of inbreeding?



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6. What is inbreeding depression? Why do self pollinated crops not show the ill-effects of inbreeding depression?



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7. What is interspecific hybridisation? Give one example of a crop in which it is practised and mention one advantage derived from it.



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8. (a) How can haploid plants be raised in the laboratory?

(b) Name the plant first used in India to produce haploid plants.

(c) Can haploid plants raise their own progeny? Give reason.



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9. What is somatic hybridisation?



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10. What is somatic hybridisation? Explain the various steps involved in the process. Mention any two uses of somatic hybridisation

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11. Write a note on apiculture.

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12. What is haploidy? How are haploid plants raised? How are they helpful in plant breeding?



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13. How is a disease-resistant plant selected for successful breeding?



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14. What do you understand by green revolution? Mention the varieties of wheat and rice introduced in India.



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15. Describe micropropagation and its advantages in brief.



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16. What is meant by outbreeding? Describe the different methods of outbreeding in animals.



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17. What is meant by plant tissue culture? Write a short note on meristem culture.



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18. What are the important points for successful bee-keeping?



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19. Discuss the role of plant breeding in agriculture.



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Previous Years Board Paper Questions A Very Short Answer Type Questions

1. Give the scientific term for the symbiotic association of fungi with the roots of higher plants.



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2. Elaborate IPM



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3. Define hybridisation



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4. Write a short note on cryopreservation



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5. Give reasons Hybrid seeds should be raised every year.



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6. Explain briefly the plant introduction.



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7. What is meant by heterosis?



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8. Why are the spores of *Bacillus thuringiensis* used as bioinsecticide?



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Previous Years Board Paper Questions B Short Answer Type Questions

1. Define plant introduction and acclimatisation



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2. Write a short note on bioherbicides.



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3. Write a short note on multiple ovulation embryo transfer technology.



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4. Enumerate any four essential features of good and effective poultry farm management practices.



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5. What is a single cell protein? How is it significant for human welfare?



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6. The symbol G is used for the flower of



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Previous Years Board Paper Questions C Short Answer Type Ii Questions

1. Briefly describe the origin of bread wheat (*Triticum aestivum*)



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2. Explain hybridisation. Describe the various techniques of hybridisation in plants.



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3. If both the parents are carriers for thalassemia which is an autosomal recessive

disorder what are the chances of pregnancy resulting in an affected child



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4. Describe the procedure of hybridisation in plants.



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5. Give four applications of tissue culture in crop improvement.



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6. Explain mass selection and pure line selection. How is pure line selection a better method for crop improvement?



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7. What is IPM? Give an example of bioinsecticides and bioherbicides and how do they help in pest control



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8. Describe the tissue culture technique in plants.



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Previous Years Board Paper Questions D Long Answer Type Questions

1. Give the advantages and disadvantages of pesticides.



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2. List any four applications of tissue culture.



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Reviews Questions Question 1 A

1. Give one significant difference between each of the following

(i) Euploids and Aneuploids

(ii) Callus culture and Suspension culture

(iii) Mass selection and Clonal selection



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Reviews Questions Question 1 B

1. Each of the following questions/statements has four suggested answers. Rewrite the correct answer in each case:

(i) In callus culture, roots can be induced by supply of

A. Auxin

B. Cytokinin

C. Gibberellin

D. Ethylene

Answer:



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2. Each of the following questions/statements has four suggested answers. Rewrite the

correct answer in each case:

(ii) Germplasm includes

A. Cultivated improved varieties

B. The varieties which are no more in
cultivation

C. Wild and obsolete plants

D. All of these

Answer:



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3. Each of the following questions/statements has four suggested answers. Rewrite the correct answer in each case:

(iii) Both in callus and suspension cultures commonly used auxin is

A. NAA

B. IBA

C. 2,4-D

D. 2, 4, 5-Trichlorophenoxyacetic acid

Answer:



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4. Each of the following questions/statements has four suggested answers. Rewrite the correct answer in each case:

(iv) Jaya and Ratna are two semidwarf varieties of

A. Mexican wheat

B. Maize, developed in IRRI

C. Rice, developed in India

D. Millets, developed in Punjab

Answer:



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Reviews Questions Question 1 C

1. Mention one significance of the following

(i) Hybridisation in crop improvement

(ii) Single cell Protein



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Reviews Questions Question 1 D

1. State the best known contribution of:

(i) Dr. E. Borlaug (ii) Dr. M.S. Swaminathan



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Reviews Questions Question 1 E

1. Expand the following:

(i) HYV (ii) SCP (iii) ICAR (iv) IBPGR



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Reviews Questions Question 2

1. What is somatic cell hybridisation? Mention its applications.



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Reviews Questions Question 3

1. What is mutation breeding? List the steps in mutation breeding to get a desired crop.



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Reviews Questions Question 4

1. What are pests and pesticides? Give biological methods of pest control.



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Competition Corner Objective Type Questions A Multiple Choice Questions

1. The term heterosis was first coined by

- A. McClintock
- B. Boweri
- C. Swaminathan
- D. Shull

Answer: D



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2. The plant which is used for studying hybrid vigour or heterosis is

A. Maize

B. Pea

C. Datura

D. None of these

Answer: A



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3. A hybrid where the cytoplasm of two parent cells are fused by retaining only one parental nucleus is called

A. Asymmetric somatic hybrid

B. Cybrid

C. An interbreed

D. Symmetric somatic hybrid

Answer: B



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4. Desired improved varieties of economically useful crops are raised by

A. Migration

B. Biofertiliser

C. Hybridisation

D. Natural selection

Answer: C



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5. Somatic hybridization is a technique of:

- A. Natural breeding.
- B. Natural pollination
- C. Artificial pollination
- D. Somatic cells hybridisation

Answer: D



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6. Study the following pathogens

I *Yersinia pestis*

II. *Borrelia* sp

III. *Oidium albicans*

IV. *Microbacterium leprae*

V. *Haemophilus gallinarium*

Which of the above cause damage to poultry industry?

A. I and IV

B. III and V

C. II and V

D. IV and V

Answer: B



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7. Crossing of unrelated pure breeding animals of different traits within the same breed is called

A. Cross breeding

B. Out crossing

C. Close breeding

D. Species hybridisation

Answer: B



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8. Isinglass, a type of by-product of fish industry is principally used for

- A. Feeding cattle, pigs and poultry
- B. Preparation of paints and varnishes O
- C. Clarification of vinegar, wines and beer
- D. Production of insulin

Answer: C



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9. Which of the following plant species would you select for the production of bioethanol?

A. Brassica

B. Zea mays

C. Pangarria

D. Jatropha

Answer: B



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10. In maize, hybrid vigour is exploited by

A. Bombarding the seeds with DNA O

B. Crossing of two inbred parental lines

C. Harvesting seeds from the most
productive plants

D. Inducing mutations

Answer: B



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11. Which of the following is correctly
matched?

- A. Central Rice Research Institute (Shimla)
- B. National Botanical Research Institute
(Delhi)
- C. Central Drug Research Institute
(Cuttack)
- D. Central Food Technology Research
Institute (Mysore)

Answer: D



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12. Wonder wheat is new wheat variety developed by

A. Mexico's International Wheat and Maize Improvement Centre

B. Indian National Botanical Research Institute

C. Australian Crop Improvement Centre

D. African Crop Improvement Centre

Answer: A





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13. The terminator gene technology causes

- A. Failure of seed setting after one generation
- B. Breakage of seed dormancy
- C. Early flowering in plants
- D. None of the above

Answer: A



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14. The plant of *Triticum aestivum*

A. Haploid

B. Diploid

C. Tetraploid

D. Hexaploid

Answer: D



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15. Green potatoes are toxic due to

A. Phytoalexins

B. Solanin

C. Triazine

D. Hormones

Answer: B



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16. For cryopreservation, plant materials are frozen at

A. $-196^{\circ}C$

B. $-150^{\circ}C$

C. $-80^{\circ}C$

D. $-40^{\circ}C$

Answer: A



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17. Shakti, rattan and protina are three important lysine rich varieties of

A. Rice

B. Pulses

C. Wheat

D. Maize

Answer: D



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18. Which type of endosperm will be formed on hybridisation of diploid female plant and tetraploid male plant?

A. Triploid

B. Pentaploid

C. Tetraploid

D. Diploid

Answer: C



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19. By which of the following methods, new and better varieties of plants can be formed?

A. Selection

B. Grafting

C. Hybridisation

D. Hybridisation followed by selection

Answer: D



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20. Which is not applicable to the biological species concept?

A. Hybridisation

B. Natural population

C. Reproductive isolation

D. Gene pool

Answer: A



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21. Real product of apiculture is

A. Honey

B. Beeswax

C. Both (a) and (b)

D. None of these

Answer: C



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22. In poultry first deworming is usually done around this age

A. 4 weeks

B. 8 weeks

C. 12 weeks

D. 16 weeks

Answer: B



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23. Compare the statements A with B.

Statement A: Ranikhet disease is the disease of poultry

Statement B: It is caused by a virus.

- A. Both the statements A and B are correct.
- B. Statement A is correct and B is wrong
- C. Statement A is wrong and B is correct
- D. None of the above

Answer: A



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24. Which one of these diseases in animals is caused by *Babesia bigemina*

A. Rinderpest

B. Tick fever

C. Anthrax

D. Diarrhoea

Answer: B



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25. Which of the following is an endogenic species of earthworm?

A. *Octochaetona serrata*

B. *Lampito maritti*

C. *Lumbricus feretris*

D. All of the above

Answer: A



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26. In which method electric current is created for capturing fishes?

- A. Fish finding
- B. Light fishing
- C. Gill net fishing
- D. Electro fishing

Answer: D



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27. In honey, the percentage of maltose and other sugar is

A. 92

B. 8.81

C. 10.5

D. 11.2

Answer: C



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28. Choose the minor carp from the following

A. *Cyprinus carpio*

B. *Anguilla* sp

C. *Labeo bata*

D. *Ctenopharyngodon idella*

Answer: C



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29. Which one of the following is the American poultry breed?

A. Australop

B. Minorica

C. Assel

D. Rhode Island Red

Answer: D



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30. Breeding of crops with high levels of minerals, vitamins and proteins is called

A. Somatic hybridisation

B. Biofortification

C. Biomagnification

D. Micropropagation

Answer: B



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31. Disease resistance crop is obtained by

- A. Crossing with new varieties
- B. Crossing with wild varieties
- C. Injecting with organic compounds
- D. None of the above

Answer: B



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32. A man made allopolyploid cereal crop is

A. *Hordeum vulgare*

B. Triticale

C. Raphanobrassica

D. *Zea mays*

Answer: C



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33. In plant A, $2n = 12$ and in plant B, $2n = 16$.

Then the ploidy number of cross breeding plant is

A. 7

B. 21

C. 14

D. 28

Answer: C



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34. Cotton fibre is basically a type of

A. Trichome

B. Scale

C. Dried seed coat

D. Non glandular hair

Answer: A



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35. Root cells of wheat has $2n = 42$ chromosomes. Which one of the following is the basic chromosome number of Wheat?

A. 42

B. 21

C. 7

D. 14

Answer: C



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36. 'Jaya' and 'Ratna' developed for green revolution in India are the varieties of

A. Maize

B. Rice

C. Wheat

D. Bajra

Answer: B



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37. Himgiri developed by hybridisation and selection for disease resistance against rust pathogens is a variety of

A. Chilli

B. Maize

C. Sugarcane

D. Wheat

Answer: D



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38. A collection of plants and seeds having diverse alleles of all the genes of a crop is called

- A. Herbarium
- B. Germplasm
- C. Gene library
- D. Genome

Answer: B



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39. Agarose extracted from sea weeds finds use in

A. Spectrophotometry

B. Tissue Culture

C. PCR

D. Gel electrophoresis

Answer: D



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40. A system of rotating crops with legume or grass pasture to improve soil structure and fertility is called

- A. Strip farming
- B. Shifting agriculture
- C. Ley farming
- D. Contour farming

Answer: C



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Competition Corner Objective Type Questions B

Assertion And Reason Type Questions

1. Assertion: Catfishes are the best culturable fishes.

Reason: Catfishes survive even at high temperature and low oxygen.

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

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

C. If assertion is true but the Reason are false

D. If assertion is False but the Reason is true

Answer: D



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2. Assertion: *Apis mellifera* species of honeybees is commonly used for apiculture.

Reason: *Apis mellifera* is very docile, highyielding and less swarming

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: A



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3. Assertion: By suction pressure method, flowers can be emasculated.

Reason: Emasculatation increases the chances of self-pollination.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: C



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4. Assertion: Agar is used to solidify the medium

Reason: Higher concentration of agar makes the medium hard and diffusion of nutrients in plant tissues may be checked.

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

- B. If both Assertion and Reason are true and the Reason is not the correct explanation of the assertion
- C. If assertion is true but the Reason are false
- D. If both Assertion and Reason are false

Answer: B



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5. Assertion: In Indian dairy farms, the owners prefer to have buffaloes than the cows.

Reason: Buffaloes yield more milk than the cows and their milk contains fats.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: A



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6. Assertion: Mass selection is advantageous in self-pollinated plants.

Reason: Self-pollinated plants retain the

selected traits in the progeny as they are homozygous.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: A



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7. Assertion: Protoplast fusion is one of the major advantages of tissue culture

Reason: The naked protoplasts of two different plants fuse to form a hybrid.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: B



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8. Assertion: Somaclonal variations occur in tissue culture processes

Reason: Variations cannot occur in nature.

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

B. If both Assertion and Reason are true and the Reason is not the Reason is not

the correct explanation of the assertion

C. If assertion is true but the Reason are
false

D. If both Assertion and Reason are false

Answer: C



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9. Assertion: Poultry farming helps in raising the nutritional standards.

Reason: Poultry supplies both meat and egg which has more nutrients.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: A



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10. Assertion: Poultry farms should be kept lighted at night.

Reason: Poultry birds are afraid of predators at night.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: C



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11. Assertion Vegetarians may take infertile eggs produced by purely female stocks in which male chickens are not kept.

Reason: Such eggs often called vegetarian eggs, are equivalent to milk in that both are animal products and do not produce life.

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

- B. If both Assertion and Reason are true and the Reason is not the correct explanation of the assertion
- C. If assertion is true but the Reason are false
- D. If both Assertion and Reason are false

Answer: A



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12. Assertion: Harvested fish should be immediately carried to the market for disposal.

Reason: Fish decay very quickly.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: A



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13. Assertion: A gene bank should not be regarded as a plant museum.

Reason: The germplasms stored in the gene

bank are actively utilised by breeders to develop novel varieties.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: A



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14. Assertion: Cattle feed should contain both roughage and concentrate.

Reason: Roughage of feed provides nutrients, while concentrate of food contains fibres

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: C



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15. Assertion: Artificial insemination breeding technique is better than natural breeding.

Reason: In induced breeding, the ovulation is stimulated by hypophysation

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

- B. If both Assertion and Reason are true and the Reason is not the correct explanation of the assertion
- C. If assertion is true but the Reason are false
- D. If both Assertion and Reason are false

Answer: B



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16. Assertion: Cryopreservation is one of the best methods of germplasm storage.

Reason: In cryopreservation, the cells remain in a suspended stage

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: A



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17. Assertion: One of the major crops that originated in the new world is wheat.

Reason: Wheat is cultivated on large scale in Central Asia

A. (a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. (b) If both Assertion and Reason are true and the Reason is not the Reason is not the correct explanation of the assertion

C. (c) If assertion is true but the Reason are false

D. (d) If both Assertion and Reason are false

Answer: D



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18. Assertion: Genetic diversity of our crop plants must be conserved.

Reason: Genetic diversity is being or is likely to be used in the improvement of domesticated plants.

A. If both Assertion and Reason are true and the Reason is the correct

explanation of the Assertion.

B. If both Assertion and Reason are true

and the Reason is not the Reason is not

the correct explanation of the assertion

C. If assertion is true but the Reason are

false

D. If both Assertion and Reason are false

Answer: A



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19. Assertion: Triticale is the most remarkable man-made cereal, joins the rank of cereals.

Reason: The crop is not suited for bread making

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: B



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20. Assertion: Honey is an animal product produced by honeybee

Reason: Honey contains only sugar, nothing else.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: D



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21. Assertion: Protoplast culture is an important technique of genetic engineering.

Reason: This technique results in the production of genetically modified crops.

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

- B. If both Assertion and Reason are true and the Reason is not the correct explanation of the assertion
- C. If assertion is true but the Reason are false
- D. If both Assertion and Reason are false

Answer: D



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22. Assertion: Virus-free plants can be produced from virus infected plants by means of meristem tissue culture,

Reason: The virus fails to grow during the growth of host tissue in the artificial medium.

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

B. If both Assertion and Reason are true and the Reason is not the Reason is not

the correct explanation of the assertion

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: C



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23. Assertion: Fish meal is a rich source of proteins for cattle and poultry.

Reason: Fish meal is produced from non-edible parts of fish like fins, gills, etc.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: C



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24. Assertion: Cattle breeds can be improved by superovulation and embryo transfer.

Reason: Superovulation in high milk-yielding cows is induced by hormonal injections.

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

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

C. If assertion is true but the Reason are false

D. If both Assertion and Reason are false

Answer: B



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25. Assertion: *Citrullus vulgaris* is produced from a cross between $4n$ male and $2n$ female plants.

Reason: These triploid sterile plants do not bear seeds.

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

- B. If both Assertion and Reason are true and the Reason is not the correct explanation of the assertion
- C. If assertion is true but the Reason are false
- D. If both Assertion and Reason are false

Answer: B



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