



KSEAB PYQ K (2023)

Kannada

BOTANY

1. Which among these one is not a post-fertilization event?
(A) Gametogenesis
(B) Embryogenesis
(C) Fruit formation
(D) Seed formation
2. The most resistant organic material present on exine of pollen grains is
(A) Tapetum
(B) Gempore
(C) Sporopollenin
(D) Cellulose
3. Tassels in Corn cob represent
(A) Ovary
(B) Anther
(C) Filament
(D) Stigma and Style
4. Who noted that the behaviour of Chromosomes was parallel to the behaviour of genes?
(A) T.H. Morgan
(B) Gregor. J. Mendel
(C) Alfred Sturtevant
(D) Walter Sutton & Theodore Boveri
5. The first genetic material could be
(A) Protein
(B) Carbohydrates
(C) DNA
(D) RNA
6. Which of the following is used as an Industrial pollution indicator?
(A) Mosses
(B) Lichens
(C) Ferns
(D) Algae
7. Sonalika and Kalyan Sona are varieties of
(A) Wheat
(B) Rice
(C) Millet
(D) Tobacco
8. Which one of the following alcoholic drinks is produced without distillation?
(A) Wine
(B) Whisky
(C) Rum
(D) Brandy
9. According to Allen's rule the mammals from colder climates have
(A) Shorter ears and longer limbs
(B) Longer ears and shorter limbs
(C) Longer ears and longer limbs
(D) Shorter ears and shorter limbs
10. Point mutation arises due to the change in _____
11. _____ states that two closely related species competing for the same resources cannot co-exist indefinitely and a competitively inferior one will be eliminated eventually.
12. The amount of nutrient, such as carbon, nitrogen, phosphorus and calcium present in the soil at any given time is called as _____
13. The reservoir of gaseous type of nutrients cycle exist in the _____
14. The natural interconnection of food chains make it a _____



15. Mention the four symptoms of Down's syndrome.
16. Write the genotype of the parents when their children are with A, B, AB, O blood groups.
17. Write the two basic amino acids residues which are rich in histones.
18. Differentiate between Geitonogamy and Xenogamy.
19. The use of CNG is better than petrol or diesel. Give four reasons.
20. Mention any three applications of DNA finger printing technique.
21. What is Ecological Succession? Distinguish between Primary succession and Secondary succession.
22. (A) Mention four "Evil Quartet", which cause deletion of biodiversity.
(B) Among vertebrates, which group of animals has the highest number in global biodiversity?
23. What is double fertilization? Describe fertilized embryo sac with a neat labelled diagram.
24. What is incomplete dominance? Explain it with reference to flower colour in snapdragon.
25. Explain the role of microbes in industrial products.
26. Describe Fredrick Griffith experiment to show transformation in Bacteria.
27. (A) Mention any two mechanisms how the human body compensates for low oxygen availability at higher altitude.
(B) Write two suspended activities in animals against abiotic stresses with suitable examples.
(C) The Abingdon tortoise in Galapagos Islands became extinct after goats were introduced on the Island. Mention the type of interaction.



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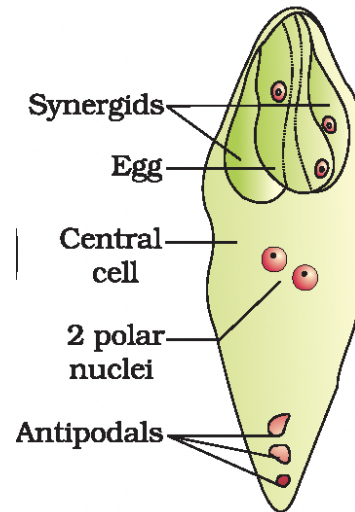
BOTANY

Hint & Solution

- | | |
|---|---|
| 1. (A)
Gametogenesis | 14. Food web |
| 2. (C)
Sporopollenin | 15. • Short statured with small round head
• Furrowed tongue and partially open mouth
• Palm is broad with characteristic palm crease
• Physical, psychomotor and mental development is retarded |
| 3. (D)
Stigma and Style | 16. The genotype of the parents blood group is $I^A i$ and $I^B I / I^A I^O$ and $I^B I^O$ |
| 4. (D)
Walter Sutton & Theodore Boveri | 17. • Lysine
• Arginine |
| 5. (D)
RNA | 18. Transfer of pollen grains from the anther to the stigma of another flower of the same plant is called geitonogamy
Transfer of pollen grains from the anther to the stigma of a different plant of the same species |
| 6. (B)
Lichens | 19. • CNG burns most efficiently, unlike petrol or diesel, in the automobiles and very little of it is left unburnt
• CNG is cheaper than petrol or diesel
• CNG cannot be siphoned off by thieves |
| 7. (A)
Wheat | |
| 8. (A)
Wine | |
| 9. (D)
Shorter ears and shorter limbs | |
| 10. Single base pair of DNA | |
| 11. Gause's-competitive exclusion principle | |
| 12. Standing state | |
| 13. Atmosphere | |



- CNG cannot be adulterated like petrol or diesel
20. • In forensic science
- In determining population diversities
 - Evolutionary biology
 - In determining genetic diversities
21. The gradual and fairly predictable change in the species composition of a given area is called ecological succession
- A process of succession that starts in an area where no living organisms are there, these could be areas where no living organisms ever existed, say bare rock is called primary succession
 - A process of succession that starts in areas that somehow, lost all the living organisms that existed there is termed secondary succession
22. (A) Four “Evil Quartet”
- Habitat loss and fragmentation
 - Over-exploitation
 - Alien species invasions
 - Co-extinctions
- (B) Fishes
23. The phenomenon of two types of fusions i.e., syngamy and triple fusion that take place in an embryo sac of flowering plants is termed double fertilisation.



Structure of fertilized embryo sac:

- The fertilized embryo sac consist large primary endosperm cell consisting triploid primary endosperm nucleus.
 - It also consists of diploid zygote.
 - At chalazal end it consist degenerating antipodal cells and at micropylar end it has degenerating synergids
24. A phenomenon where both the alleles of a character express incompletely producing a new intermediate phenotype in the heterozygous condition is called incomplete or partial dominance or blended inheritance. Correns crossed homozygous red flowered plant (RR) with homozygous white flowered plant (rr), surprisingly in F_1 generation all hybrids were pink flowered plants (Rr). The dominant allele 'R' was not completely dominant over the recessive allele 'r' and this made it possible to distinguish Rr as pink from RR (red) and rr (white) When F_1 pink flowering plants were selfcrossed, the F_2 generation produce 25% red flowered plants, 50% pink flowered plants and 25% white flowered plants in 1:2:1 ratio. From the hybridisation results we can observe that F_2 phenotypic & genotypic ratio in incomplete dominance are same i.e., 1 : 2 : 1.



1 homozygous red, 2 heterozygous pink and 1 homozygous white.

25. Production of microbial products useful to human beings on an industrial scale requires growing microbes in very large vessels called fermentors.

Aspergillus niger - citric acid

Acetobacter aceti - acetic acid

Clostridium butylicum - butyric acid

Lactobacillus -lactic acid.

Yeast (*Saccharomyces cerevisiae*) - ethanol.

Penicillium notatum – Penicillin

Streptococcus - Streptokinase

Trichoderma polysporum - Cyclosporin A

Monascus purpureus - Statins

26. • Mice infected with the S strain of *Streptococcus pneumoniae* (virulent) died from pneumonia infection but
- Mice infected with the R strain did not develop pneumonia and were alive.
 - Mice infected with heat -killed S strain bacteria did not kill them and mice were alive.
 - When he injected a mixture of heat-killed S strain and live R strain bacteria, the mice died. Moreover, he recovered living S bacteria from the dead mice.
 - He concluded that the R strain bacteria had somehow been transformed by the heat-killed S strain bacteria.
 - Some 'transforming principle', transferred from the heat-killed S strain, had enabled the R strain to synthesise a smooth polysaccharide coat and become virulent.
 - This must be due to the transfer of the genetic material.

27. (A) The body compensates low oxygen availability by increasing red blood cell production,
Decreasing the binding affinity of haemoglobin and by increasing breathing rate.
- (B) Bears going into hibernation during winter to escape in time.
- * Snails and fish go into aestivation to avoid summer-related problems heat and desiccation.
 - * Zooplanktons – Diapause.
- (C) Competition/Competitive Exclusion.