

2018 VI 13

1430

Seat No. :

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Time : 2½ Hours

Subject Code

Biology
(New Pattern)

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Total No. of Questions : 28

(Printed Pages : 4)

Maximum Marks : 55

INSTRUCTIONS :

- 1) **All questions are compulsory.**
- 2) **The question paper consists of four Sections : A, B, C and D. Section A contains 10 questions of one mark each. Section B has 11 questions of two marks each. Section C has 5 questions of three marks each. Section D has 2 questions of four marks each.**
- 3) **There is no overall choice. However an internal choice has been provided in one question of Section B, one question of C and both the questions of Section D.**
- 4) **MCQs should be attempted only once on the answer book, if attempted more than once, it will not be evaluated. Choose and rewrite the correct alternative only.**
- 5) **Draw diagram in lead pencil only.**

SECTION – A (1 mark each)

1. In date palm species, both male and female flowers are present on the same individual. Thus they are
 - Dioecious
 - Monoecious
 - Bisexual
 - Unisexual
2. Abundant reserve food material enclosed in the mass of cells within the integument is
 - Tapetum
 - Endosperm
 - Nucellus
 - Chalaza



3. Inbreeding depression refers to
 - mating closely related individuals for 1 generation
 - mating unrelated individuals for 2 generations
 - mating more closely related individuals for 4 – 6 generations
 - mating unrelated individuals for 4 – 6 generations
4. Sukhvinder used conventional farming practices to eradicate pests from his farm. In spite of that his hybrid crop yield declined over the years as the seed set was affected. This is due to
 - plant disease
 - low fertility of crops
 - loss of beneficial insects
 - presence of weeds
5. In Abdul's backyard, monkeys and bats choose to forage on the fruits of a mango tree at different times in a day to avoid competition. This exhibits
 - Competitive release
 - Resource partitioning
 - Competitive exclusion
 - Interference competition
6. Define geitonogamy.
7. Mention any two basic steps involved in genetically modifying an organism.
8. Give the role of humus in a terrestrial ecosystem.
9. A pharma company has developed a new drug to treat tuberculosis. How is the drug tested on an animal before it is suitable for human use by applying biotechnology.
10. In a recent forest fire at Silent Valley, phosphorus from the dead organisms was released into the soil due to a specific organism. Name the organism.

SECTION – B (2 marks each)

11. Describe the inheritance of haemophilia as a sex-linked disease.
12. What are the important roles played by predators in an ecosystem ?



13. Draw a neat diagram of false fruit of apple.
14. Differentiate between Graafian follicle and corpus luteum. (any two points).
15. 'Bt toxin does not kill the *Bacillus thuringiensis* itself but kills insect pests'. Explain.

OR

'Adenosine deaminase deficiency can be treated permanently'. Explain.

16. Draw a neat diagram to show the structure of human sperm.
17. How does waterlogging and soil salinity have negative impacts on agriculture ?
18. Dicky is a severe alcohol addict, who ignores social norms. Since his consumption has increased, the family locked him away from alcohol. This led to his manifestation of characteristic syndrome.
 - i) Name the syndrome and give reason for its display.
 - ii) List the symptoms that are shown by Dicky.
19. Draw a neat diagram to show Watson-Crick model for semiconservative DNA replication.
20. North America faces the following problems :
 - a) Tall grass prairie has been cleared for developmental activities and agriculture.
 - b) Horticultural introduction of English Ivy plants poses a serious threat to the indigenous species.

What are the effects of the above human activities on the biodiversity ?
21. Bhuvan wants to manufacture protein food supplement in his industry by using sewage and industrial waste water. Suggest the name of the microbe and the components of the waste water that can be used in his industry.



SECTION – C (3 marks each)

22. In Golden Rice, thin grains is dominant over fat grains and straight leaves dominant over wavy leaves. You are assigned to carry out a cross between two heterozygous dominant varieties for the above traits. Use appropriate symbols and derive the phenotypic ratios using punnette square.
23. Give the salient features of the double helix structure of DNA.
24. Describe the homologous and analogous structures in animals with an example for each.
25. Describe the various methods used in detection of cancer.
26. Explain how the microbes such as *Rhizobium*, Mycorrhiza and Cyanobacteria are used to replenish soil nutrients in fields.

OR

Explain how the microbes such as *Trichoderma polysporum*, *Streptococcus* and *Monascus purpureus* are used in human welfare.

SECTION – D (4 marks each)

27. Discuss the contraceptive measures suitable for couples who wish to follow natural and surgical methods.

OR

Discuss the assisted reproductive technologies to be followed by infertile couples.

28. Explain with example how ligation of alien DNA at tetracycline resistance gene will help in selection of recombinants.

OR

Explain with examples how vectors are used to deliver genes to transform eukaryotic cells.