



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL
PRE-BOARD-II EXAMINATION 2025-26

BIOLOGY (044)
SET-II Marking Scheme

Class: XII
Date: 06/01/2026

Duration: 3 Hours
Max. Marks:70

SECTION-A

- | | |
|---|---|
| 1. D – Aa × aa | 1 |
| 2. C – Kitten 4 only | 1 |
| 3. A – Trichoderma sp. | 1 |
| 4. B – Single stranded DNA | 1 |
| 5. C – 16 | 1 |
| 6. C – Deoxyribonuclease | 1 |
| 7. D – Commensalism | 1 |
| 8. D – End of proliferative phase | 1 |
| 9. A – Inorganic nutrients from humus | 1 |
| 10. C – Higher number of parental types | 1 |
| 11. D – Polar regions | 1 |
| 12. D – Spermiogenesis | 1 |
| 13. A | 1 |
| 14. C | 1 |
| 15. A | 1 |
| 16. A | 1 |

SECTION-B

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|---|---|
| 17. (Any two points)
• Host cell must take up foreign DNA
• CaCl ₂ treatment / Heat shock / Electroporation
OR
• Vectors help in replication of foreign DNA
• pBR322, pUC18 | 2 |
| 18. • Aminoacylation – binding of amino acid to tRNA
• Ensures correct translation | 2 |
| 19. • David Tilman showed greater species richness → greater stability | 2 |
| 20. • B cells – antibody mediated immunity
• T cells – cell mediated immunity
OR
• Correct labelling ($\frac{1}{2} \times 4$) | 2 |
| 21. • Ecological pyramids ignore decomposers
• Assume simple food chains
OR
• Grazing chain begins with producers
• Detritus chain begins with dead matter | 2 |

SECTION-C

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|--|---|
| 22. • Coleoptile – protects plumule
• Tapetum – nourishes pollen
• Scutellum – nutrient absorption | 3 |
| 23. • Natural insulin formed as proinsulin | 3 |

	• rDNA insulin lacks C-peptide • rDNA insulin is immediately active	
24.	• NH₄Cl • To differentiate old and new DNA • CsCl density gradient • Semi-conservative replication	3
25.	• Corpus luteum – progesterone • Acrosome – enzymes • Fimbriae – ovum collection	3
26.	• Satellite DNA – repetitive DNA • Shows polymorphism • Used in DNA fingerprinting	3
27.	• K – carrying capacity • Logistic curve is realistic • Exponential curve without predators	3
28.	• Prevents autogamy • Due to genetic mechanism • Cross-pollination occurs	3
<u>SECTION-D</u>		
29.	• Oxygen present in setup • Reducing atmosphere used by Miller • Amino acids OR • Chemical evolution	4
30.	• Morphine • CNS receptors, analgesic/sedative • Papaver somniferum OR • Pain relief, sleep induction	4
<u>SECTION-E</u>		
31.	• Gene therapy – ADA deficiency • Functional gene introduced • Restores immunity OR • Denaturation • Annealing • Extension • Taq polymerase • Amplification	5
32.	• Single sperm fertilizes • Zona pellucida blocks polyspermy • Meiosis II completion • Acrosomal reaction • Ampulla	5
33.	• Ex-situ conservation • Zoos, botanical gardens • Dodo extinction OR • Wise use of wetlands • Marshes, lakes • Ecological/economic arguments	5