

Indian National Biology Olympiad (INBO) -2026

Homi Bhabha Centre for Science Education (HBCSE-TIFR)

Answer Booklet

Time: 2 hrs

ROLL NO. – –

Max. Marks: 300

- Please write the last four digits of your roll number on the top of **every page of this answer booklet** in the space provided.
- Before starting, please ensure that you have received a copy of the answer booklet containing a total of 14 numbered sheets.
- **This answer booklet must be returned to the invigilator.**
- Do not write anything on the question paper. All rough work can be done in the space provided at the end of this answer booklet.

Signature of Invigilator: _____

(Do not write anything below this line.)

	X	Y	Not attempted	
Section A				3X - Y =
Section B				3X =
Total score =				

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SECTION A

Q. No.	a	b	c	d	Q. No.	a	b	c	d
1.	✓				12.				✓
2.				✓	13.	✓			
3.				✓	14.			✓	
4.		✓			15.			✓	
5.	✓				16.			✓	
6.				✓	17.		✓		
7.			✓		18.	✓			
8.	✓				19.	✓			
9.			✓		20.				✓
10.			✓		21.	✓			
11.		✓			22.		✓		

	X	Y	Not attempted	
Section A				3X - Y =

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SECTION B**CELL BIOLOGY (13.5 Points)**

23. (2 points)

	a.	b.	c.	d.
True		✓	✓	
False	✓			✓

24. (2 points)

	a.	b.	c.	d.
True	✓		✓	
False		✓		✓

25. (2 points)

Answer: ____32____ sequences

Calculations:

$$2^4 + 2^4 = 16 + 16 = 32$$

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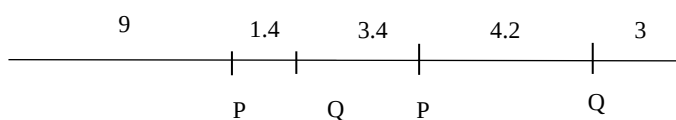
26. (2 points)

Answer: _____ 7.94×10^9 _____ molecules

Calculations:

27. (2 points)

Answer:



28. (1.5 points)

	a.	b.	c.
True	✓		✓
False			
Inconclusive		✓	

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29. (2 points)

	a.	b.	c.	d.
True	✓		✓	
False		✓		
Cannot be deduced				✓

PLANT SCIENCES (13 points)

30. (2 points)

P: _____ I _____

Q: _____ IV _____

R: _____ II _____

S: _____ III _____

31. (2 points)

	a.	b.	c.	d.
True			✓	✓
False	✓	✓		

32. (2 points)

	a.	b.	c.	d.
True				✓
False	✓	✓	✓	

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33. (2 points)

P: __iii__

Q: __iv__

R: __i__

S: __ii__

34. (2 points)

Treatment	Bending towards light	Bending away from light	No bending
1	✓		
2	✓		
3	✓		
4			✓

35. (3 points)

I: __12__ molecules

II: __12__ molecules

III: __12__ molecules

IV: __2__ molecules

V: __10__ molecules

VI: __6__ molecules

ANIMAL SCIENCES (14 points)

36. (2 points)

	a.	b.	c.	d.
Correct		✓	✓	
Incorrect	✓			✓

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37. (2 points)

Answer: ____-89____mV

Calculations:

$$V_m = 61.5 \log_{10} (5/140) = 61.5 \log_{10}(0.0357) = 61.5 \times (-1.447) = -89\text{mV}$$

38. (2 points)

	a.	b.	c.	d.
True	✓		✓	✓
False		✓		

39. (2 points)

	a.	b.	c.	d.
True	✓		✓	
False		✓		✓

40. (2 points)

	a.	b.	c.	d.
True	✓		✓	
False		✓		✓

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41. (2 points)

	a.	b.	c.	d.
True	✓		✓	✓
False		✓		

42. (2 points)

	a.	b.	c.	d.
True		✓	✓	✓
False	✓			

GENETICS & EVOLUTION (16 points)

43. (2 points)

Answer: _____1/256_____

Calculations:

Additional 20 cm – genotype of plant would be $M^1M^1N^2N^2O^3O^3P^4P^4$
 $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} = 1/256$

44. (3 points)

(A) The RFLP pattern of individuals II-1 and II-2 (Parents) are observed in lanes
 ____L9____ and ____L5____ respectively.

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(B) The progeny in generation III are as follows:

___2___ individual/s with ___1,2___ alleles

___2___ individual/s with ___2,5___ alleles

___2___ individual/s with ___5,7___ alleles

___1___ individual/s with ___1,7___ alleles

45. (2 points)

Answer: _____ $M^R m^d$ _____ x _____ $M m^d$ _____

46. (3.5 points)

(A)

Answer: _____ 9 brown : 3 black : 4 pale _____

(B)

(i) 7 brown: 7 pale: _____ $SsBB$ _____

(ii) 8 brown: 9 black: _____ $SSBb$ _____

(iii) 5 brown: 6 black : 12 pale: _____ $SsBb$ _____

47. (2 points)

(A) _____ 0 _____

(B) _____ $1/8$ _____

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48. (2 points)

	a.	b.	c.	d.
True			✓	✓
False	✓	✓		

49. (1.5 points)

Type of selection	
Dominant selection where A2 is dominant over A1	2
Dominant selection where A1 is dominant over A2	3
Codominant selection	1

ECOLOGY (10 points)

50. (2 points)

	a.	b.	c.	d.
True		✓		✓
False	✓		✓	

51. (2 points)

a.	b.	c.	d.
	✓		

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52. (2 points)

a.	b.	c.	d.
	✓		

53. (2 points)

a.	b.	c.	d.
✓			✓

54. (2 points)

a.	b.	c.	d.
	✓		

ETHOLOGY (6 points)

55. (2 points)

	a.	b.	c.	d.
True			✓	
False	✓	✓		✓

56. (2 points)

	a.	b.	c.	d.
True				
False	✓	✓	✓	✓

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57. (2 points)

(i) ____a____

(ii) ____b____

(iii) ____d____

(iv) ____c____

BIOSYSTEMATICS (5.5 points)

58. (2 points)

	a.	b.	c.	d.
Correct	✓			✓
Incorrect		✓	✓	

59. (3.5 points)

M: ____e____

N: ____b____

O: ____g____

P: ____a____

Q: ____c____

R: ____d____

S: ____f____

*****END OF SECTION B *****

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ROUGH WORK