

Indian National Biology Olympiad (INBO) -2026

Homi Bhabha Centre for Science Education (HBCSE-TIFR)

Answer Booklet

Time: 2 hrs

ROLL NO. – –

~~Max. Marks: 300~~

Max. Marks: 297

- 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.	DELETED				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:

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

*There is no partial marking.**Instruction given in the Question paper: Note that the final answer for this part of the question will be given marks only if calculations are shown in the box given and the final answer is filled in the blank.*

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26. (2 points)

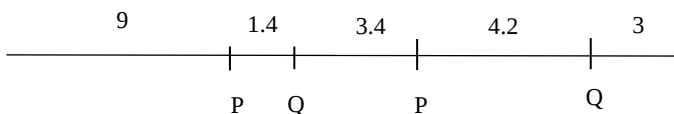
Answer: _____ 7.94×10^9 _____ molecules (Accepted range: $7.88 \times 10^9 - 8.0 \times 10^9$)

Calculations:

*There is no partial marking.**Instruction given in the Question paper: Note that the final answer for this part of the question will be given marks only if calculations are shown in the box given and the final answer is filled in the blank.*

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 (Accepted range: -88.56 to -89.5)

Calculations:

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

*There is no partial marking.**Instruction given in the Question paper: Note that the final answer for this part of the question will be given marks only if calculations are shown in the box given and the final answer is filled in the blank.*

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

(Alternate ways of expressing the correct answer accepted.)

Calculations:

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

There is no partial marking.

Instruction given in the Question paper: Note that the final answer for this part of the question will be given marks only if calculations are shown in the box given and the final answer is filled in the blank.

44. (1 + 2 = 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: *(The correct combinations can be written in any order.)*

___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. (2 + 1.5 = 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) _____ $1/8$ _____ (Alternate ways of expressing the correct answer accepted.)

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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	II
Dominant selection where A1 is dominant over A2	III
Codominant selection	I

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.
✓			✓

(Statement c contradicts statements a and 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