

# CBSE SAMPLE PAPER – 2015

## BIOLOGY CLASS-XI 1<sup>ST</sup> TERM

Time – 3 Hrs

Max marks – 70

The Weightage of the distribution of marks over different dimensions of the question paper shall be as follows.

### Weightage to content/subject unit

<u>Unit</u>	<u>content</u>	<u>Marks</u>
<u>Unit-I</u>	Diversity of living organism	16
Unit – II	Structural organization in plants and animals	24
Unit – III	Cell: structure and function	30
<b>Total :</b>		<b>70</b>

### Weightage to different forms of questions

<u>Sl.No</u>	<u>Forms of questions</u>	<u>Marks for each</u>	<u>No. of Ques.</u>	<u>Total marks</u>
1	Very Short Ans (VSA)	1	8	8



2	Short answer (SA II)	2	10	20
3	Short answer (SA I)	3	9	27
4	long Answer (LA)	5	3	15
	<b>Total</b>	-	<b>30</b>	<b>70</b>

**Scheme of Option:**

1. There will be no overall option.
2. Internal choices (either/or type) on a very selective basis has been provided. This choice has been given in one question of 2 marks, one question in 3 marks and all the three questions of 5 marks Weightage.

**Weightage to difficulty level:**

Sl.No	Estimated difficulty level	percentage
1	Easy	15
2	Average	70
3	Difficult	15

Sl.No	Types of questions→ Units ↓	VSA 1 mark	SA II 2 marks	SA I 3 marks	LA 5 marks
1	Diversity of living organism	1 (1)	3(6)	3 (9)	-
2	Structural organization in plants and animals	4(4)	3(3)	3(9)	1 (5)
3	Cell: structure and function	3 (3)	4 (8)	3 (9)	2 (10)
	<b>Total</b>	<b>8 (8)</b>	<b>10 (20)</b>	<b>9 (27)</b>	<b>3 (15)</b>

Prepared by

H.K. Giri. PGT (Bio)

JNV DHENKANAL ODISHA (BHOPAL REGION)

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**NAVODAYA VIDYALAYA SAMITI**



**FIRST TERM EXAMINATION – 2012,**

**SUB: BIOLOGY**

**CLASS – XI Sc**

**MAX-MARKS – 70**

**SET - I**

**General Instructions:**

- (i) *All questions are compulsory.*
- (ii) *This question paper consists of four sections **A, B, C** and **D**. Section **A** contains **8** questions of **one** mark each, Section **B** is of **10** questions of **two** marks each, Section **C** is of **9** questions of **three** marks each and Section **D** is of **3** questions of **five** marks each.*
- (iii) *There is no overall choice. However, an internal choice has been provided in one question of **2** marks, one question of **3** marks and all the three questions of **5** marks Weightage. A student has to attempt only one of the alternatives in such questions.*
- (iv) *Wherever necessary, the diagrams drawn should be neat and properly labeled.*

**SECTION – A**

1. Identify the phylum in which adults exhibit radial symmetry and larva exhibit bilateral symmetry. (1)
2. Name the structure in the green algae which store starch and protein. (1)
3. The cross-section of a plant material showed the following features when viewed under the microscope.  
(a) The vascular bundles were radially arranged.

(b) Four xylem strands with exarch condition of protoxylem.

To which organ should it be assigned? (1)

4. State the number of segments in earthworm which are covered by a prominent dark band or clitellum. (1)

5. The digestive system of frog is made of the following parts. Arrange them in an order beginning from mouth.

**Mouth, oesophagus, buccal cavity, stomach, intestine, cloaca, rectum, cloacal aperture.** (1)

6. Define plasmid in bacteria. (1)

7. Name a homopolymer of glucose found in animal. (1)

8. Name the special bond that links two monosaccharides. (1)

### SECTION – B

9. Suppose you accidentally find an old preserved permanent slide without a label. In your effort to identify it, you place the slide under microscope and observe the following features :- (2)

(a) Unicellular

(b) Well defined nucleus

(c) Biflagellate—one flagellum lying longitudinally and the other transversely.

What would you identify it as? Can you name the kingdom it belongs to?

10. Provide appropriate technical term for the given statements. (2)
- Blood-filled body cavity in arthropods.
  - Free-floating form of cnidaria.
  - Stinging organ of jelly fishes.
  - Lateral appendages in aquatic annelids.
11. Explain double fertilization in angiosperm. (2)
12. Explain the following terms : (2)
- Paurometabolous.
  - Uricotelic.
13. Distinguish between exocrine and endocrine gland. (2)
14. Answer the following questions: (2)
- What do you call the common chamber to which the alimentary canal, the urinary and reproductive tract open, in the other hand it communicates to the exterior.
  - Name the special structure in the intestine of the earthworm that increases the surface area of absorption.
15. Write the position and function of the following tissues in plants.
- Bulliform cells

- b. Casparian strips (2)
16. What are secondary metabolites? Give two examples. (2)

OR

Write floral formula for a flower which, is bisexual; actinomorphic; sepals five, twisted aestivation, petals five; valvate aestivation; stamens six; ovary trilocular, syncarpous, superior, trilobular with axile placentation. (2)

17. Describe the structure and function of Ribosome. (2)
18. Write the exact stage of the cell division in which following events takes place. (2)
- (a) Pairing of homologous chromosomes.
  - (b) Chiasmata formation.
  - (c) Replication of DNA.
  - (d) Crossing over between two non-sister chromatids.

**SECTION – C**

19. Fill up the given table : **a, b, c, d, e, and f.** (3)

Classes	Major pigments	Stored food

Chlorophyceae	a	b
Phaeophyceae	c	d
Rhodophyceae	e	f

20. Fill up the given table in the **a, b, c, d, e** and **f**. (3)

Common name	Scientific name	Family	Order	Class
Man	'a'	Hominidae	'b'	mammalia
Housefly	<i>Musca domestica</i>	'c'	'd'	Insecta
Wheat	'e'	poaceae	poales	'f'

21. Name and explain the three basic steps involved in the sexual cycle of fungi. (3)

22. Name the three different types of cell junctions present between adjacent cells. Explain role of each junction. (3)

23. Draw a labeled diagram of monocotyledon seed and label six parts. (3)

**OR**

What are different types of **sexual reproduction** found in the algae according to the nature of the gametes? (3)



24. Answer the following questions: (3)

- (a) What do you call the placentation in which ovules develop on inner wall of ovary?
- (b) Name the simple tissue in plant in which the cell wall is lignified.
- (c) Name the cell remains attached with the sieve tube and control its function.

25. Write the appropriate type of tissues in column B according to the functions mentioned in column A. (3)

Column - A	Column - B
a. Connects bone with bone	i. _____
b. Protective covering	ii. _____
c. Present below skin and conserve heat.	iii. _____

26. Distinguish between prokaryotic and eukaryotic cell. (3)

27. What are different types of chromosome based on the position of the centromere?

### SECTION - D

28. Answer the following question:

- (a) What represents ear in frog?

- (b) Write the excretory organ of cockroach.
- (c) Where does fertilization takes place in earthworm
- (d) Write the balancing organ of Arthropoda.
- (e) In which type of muscles intercalated disc are present. (5)

**OR**

Describe with suitable diagram secondary growth in steler and extra-steler region of dicot stem. (5)

29. Define enzyme. Classify the enzymes into different groups according to the reaction they catalyze. (5)

**OR**

Answer the following questions. (5)

- (a) Name the single membrane that bound the vacuoles.
- (b) Name the phosphor lipid that present in cell membrane.
- (c) Cell organelle that called the suicidal bag of the cell.
- (d) What you call to the cytoplasmic connection between two adjacent plant cells?
- (e) What is polyribosome?

30 What is Placentation in plants? Explain different types of placentation found in plants. (5)

**OR**

Describe the structure and function of Mitochondria. (5)

**NAVODAYA VIDYALAYA SAMITI**  
**FIRST TERM EXAMINATION – 2012,**  
**SUB: BIOLOGY**

**CLASS – XI Sc**

**MAX-MARKS – 70**

**SET - II**

**General Instructions:**

- (i) *All questions are compulsory.*
- (ii) *This question paper consists of four sections **A, B, C** and **D**. Section **A** contains **8** questions of **one** mark each, Section **B** is of **10** questions of **two** marks each, Section **C** is of **9** questions of **three** marks each and Section **D** is of **3** questions of **five** marks each.*
- (iii) *There is no overall choice. However, an internal choice has been provided in one question of **2** marks, one question of **3** marks and all the three questions of **5** marks Weightage. A student has to attempt only one of the alternatives in such questions.*
- (iv) *Wherever necessary, the diagrams drawn should be neat and properly labeled.*

**SECTION – A**

1. Name two red algae from which 'agar' is obtained and used commercially in culture of bacteria. (1)

2. The cross-section of a plant material showed the following features when viewed under the microscope.

(a) The vascular bundles were radially arranged.

(b) Four xylem strands with exarch condition of protoxylem.

To which organ should it be assigned? (1)

3. Identify the phylum in which adults exhibit radial symmetry and larva exhibit bilateral symmetry. (1)

4. Name a homopolymer of glucose found in animal. (1)

5. The digestive system of frog is made of the following parts. Arrange them in an order beginning from mouth.

**Mouth, oesophagus, buccal cavity, stomach, intestine, cloaca, rectum, cloacal aperture.** (1)

6. Cyanobacteria like Nostoc can fix atmospheric nitrogen by means of specialized cells. Name that cell. (1)

7. Name the special bond that links two monosaccharides. (1)

8. State the number of segments in earthworm which are covered by a prominent dark band or clitellum. (1)

### SECTION – B

9. Write four differences between Chondrichthyes and Osteichthyes. (2)

10. Write the exact stage of the cell division in which following events takes place. (2)

- (a) Pairing of homologous chromosomes.
- (b) Chiasmata formation.
- (c) Replication of DNA.
- (d) Crossing over between two non-sister chromatids.

11. Explain the following terms : (2)

- (a) Paurometabolous.
- (b) Uricotelic.

12. Distinguish between exocrine and endocrine gland. (2)

13. Suppose you accidentally find an old preserved permanent slide without a label. In your effort to identify it, you place the slide under microscope and observe the following features :- (2)

- (a) Unicellular
- (b) Well defined nucleus
- (c) Biflagellate—one flagellum lying longitudinally and the other transversely.

What would you identify it as? Can you name the kingdom it belongs to?

14. Answer the following questions: (2)

(c) What you call to the common chamber to which the alimentary canal, the urinary and reproductive tract open, in the other hand it communicate to the exterior.

(d) Name the special structure in the intestine of the earthworm that increases the surface area of absorption.

15. Write the position and function of the following tissues in plants.

a. Bulliform cells

b. Casparian strips (2)

16. Name the components present in a nucleotide. Mention any two nucleotides. (2)

**OR**

Write floral formula for a flower which, is bisexual; actinomorphic; sepals five, twisted aestivation, petals five; valvate aestivation; stamens six; ovary tricarpeal, syncarpous, superior, trilobular with axile placentation. (2)

17. Describe the structure and function of Ribosome. (2)

18. Provide appropriate technical term for the given statements. (2)

a. Blood-filled body cavity in arthropods.

b. Free-floating form of cnidaria.

c. Stinging organ of jelly fishes.

d. Lateral appendages in aquatic annelids.

**SECTION – C**

19. Answer the following questions: (3)

(d) Name the respiratory root present in Rhizophora (Mangrove)?

(e) The main axis terminates with flower. The flowers are borne in a basipetal order. Write the type of inflorescence.

(f) Name the type of placentation in which placenta forms a ridge along the ventral suture of ovary.

20. Fill up the given table : a,b,c,d,e and f (3)

Classes	Major pigments	Stored food
Chlorophyceae	a	b
Phaeophyceae	c	d
Rhodophyceae	e	f

21. Name and explain the three basic steps involved in the sexual cycle of fungi. (3)

22. Name the three different types of cell junctions present between adjacent cells. Explain role of each junction. (3)

23. Fill up the given table in the a, b, c, d, e and f. (3)

Common name	Scientific name	Family	Order	Class

Man	'a'	Hominidae	'b'	mammalia
Housefly	<i>Musca domestica</i>	'c'	'd'	Insecta
Wheat	'e'	poaceae	poales	'f'

24. Draw a labeled diagram of monocotyledon seed and label six parts. (3)

OR

What are different types of **sexual reproduction** found in the algae according to the nature of the gametes? (3)

25. Write the appropriate type of tissues in column B according to the functions mentioned in column A. (3)

Column - A

Column - B

a. Connects bone with bone

i. \_\_\_\_\_

b. Protective covering

ii. \_\_\_\_\_

c. Present below skin and conserve

iii. \_\_\_\_\_

heat.

26. Based on the type of pigments what are different types of plastids present in plants? (3)

27. What are different types of chromosome based on the position of the centromere?



**SECTION – D**

28. What is Placentation in plants? Explain different types of placentation found in plants. (5)

**OR**

Describe the structure and function of Mitochondria. (5)

29. Answer the following question:

(f) What represents ear in frog?

(g) Write the excretory organ of cockroach.

(h) Where does fertilization take place in earthworm?

(i) Write the balancing organ of Arthropoda.

(j) In which type of muscles are intercalated discs present. (5)

**OR**

Describe with a suitable diagram secondary growth in the stelar and extra-stelar region of dicot stem. (5)

30. Define enzyme. Classify the enzymes into different groups according to the reaction they catalyze. (5)

**OR**

Answer the following questions. (5)

(a) Name the single membrane that bounds the vacuoles.

(b) Name the phospholipid that is present in cell membrane.

- (c) Cell organelle that called the suicidal bag of the cell.
- (d) What you call to the cytoplasmic connection between two adjacent cells?
- (e) What is polyribosome?

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**FIRST TERM EXAMINATION – 2012,**  
**SUB: BIOLOGY**

**CLASS – XI Sc**

**MAX-MARKS – 70**

**SET - III**

**General Instructions:**

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- (iv) *Wherever necessary, the diagrams drawn should be neat and properly labeled.*

**SECTION – A**

1. Name two hydrocolloid obtained from algae and are used commercially.(1)
2. The cross-section of a plant material showed the following features when viewed under the microscope.
  - (a) The vascular bundles were radially arranged.
  - (b) Four xylem strands with exarch condition of protoxylem.To which organ should it be assigned? (1)
3. State the number of segments in earthworm which are covered by a prominent dark band or clitellum. (1)
4. Identify the phylum in which adults exhibit radial symmetry and larva exhibit bilateral symmetry. (1)
5. The digestive system of frog is made of the following parts. Arrange them in an order beginning from mouth.  
**Mouth, oesophagus, buccal cavity, stomach, intestine, cloaca, rectum, cloacal aperture.** (1)
6. Name a homopolymer of glucose found in animal. (1)
7. Bacteria reproduce sexually by transferring DNA from one to other. What you call to that process. (1)
8. Name the special bond that links two monosaccharides. (1)

### SECTION – B

9. Provide appropriate technical term for the given statements. (2)

- a. Blood-filled body cavity in arthropods.
- b. Free-floating form of cnidaria.
- c. Stinging organ of jelly fishes.
- d. Lateral appendages in aquatic annelids.

10. What are the two distinct stages found in moss gametophytes? (2)

11. Describe the structure and function of Ribosome. (2)

12. Write the exact stage of the cell division in which following events takes place.

- (c) Pairing of homologous chromosomes.
- (b) Chiasmata formation.
- (c) Replication of DNA.
- (d) Crossing over between two non-sister chromatids.

13. Explain the following terms : (2)

- (e) Paurometabolous.
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(e) What you call to the common chamber to which the alimentary canal, the urinary and reproductive tract open, in the other hand it communicate to the exterior.

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16. Write the position and function of the following tissues in plants.

a. Bulliform cells

b. Casparian strips (2)

17. Write one example of acidic, basic, neutral and aromatic amino acid. (2)

18. Distinguish between exocrine and endocrine gland. (2)

OR

Write floral formula for a flower which, is bisexual; actinomorphic; sepals five, twisted aestivation, petals five; valvate aestivation; stamens six; ovary trilocular, syncarpous, superior, trilobular with axile placentation. (2)

**SECTION – C**

19. Fill up the given table in the **a, b, c, d, e** and **f**. (3)

Common name	Scientific name	Family	Order	Class

Man	'a'	Hominidae	'b'	mammalia
Housefly	<i>Musca domestica</i>	'c'	'd'	Insecta
Wheat	'e'	poaceae	poales	'f'

20. Name and explain the three basic steps involved in the sexual cycle of fungi. (3)

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22. Fill up the given table : a,b,c,d,e and f. (3)

Classes	Major pigments	Stored food
Chlorophyceae		
Phaeophyceae		
Rhodophyceae		

23. Answer the following questions: (3)

(g) Why the leaflets of compound leaf are not considered as simple leaf?

(h) What do you mean by monadelphous condition?

(i) What technical term is used for sterile stamen?

24. Write the appropriate type of tissues in column B according to the functions mentioned in column A. (3)

Column - A	Column - B
a. Connects bone with bone	i. _____
b. Protective covering	ii. _____
c. Present below skin and conserve heat.	iii. _____

25. What is leucoplast? Classify them according to the function they perform. (3)

26. What are different types of chromosome based on the position of the centromere?

27. Name the three different types of cell junctions present between adjacent cells. Explain role of each junction. (3)

#### SECTION - D

28. Define enzyme. Classify the enzymes into different groups according to the reaction they catalyze. (5)

OR

Answer the following questions.

29. Name the single membrane that bound the vacuoles.

30. Name the phospholipid that present in cell membrane.

31. Cell organelle that called the suicidal bag of the cell.

32. What do you call the cytoplasmic connection between two adjacent cells?

33. What is polyribosome?

34. What is Placentation in plants? Explain different types of placentation found in plants. (5)

**OR**

Describe the structure and function of Mitochondria. (5)

35. Answer the following question:

(a) What represents ear in frog?

(b) Write the excretory organ of cockroach.

(c) Where fertilization does take place in earthworm?

(d) Write the balancing organ of Arthropoda.

(e) In which type of muscles intercalated disc are present. (5)

**OR**

Describe with suitable diagram secondary growth in stelar and extra-stelar region of dicot stem. (5)

### **MARKING SCHEME:**

#### **SET - I**

1. Echinodermata (1)
2. Pyrenoid (1)
3. Dicot root (1)
4. 14-16 (1)



5. Correct arrangement (1)
6. Correct definition ( small circular, self replicable, extra chromosomal DNA present in bacteria) – (1)
7. Glycogen (1)
8. Glycosidic bond (1)
9. Dinoflagellates  $\frac{1}{2}$ , protista –  $\frac{1}{2}$  .
10. Correct answer
  - (a) Haemocoel –  $\frac{1}{2}$
  - (b) Medusa –  $\frac{1}{2}$
  - (c) Nematocyst  $\frac{1}{2}$
  - (d) Parapodia –  $\frac{1}{2}$
11. Syngamy – 1, triple fusion – 1
12. Correct answer
  - (a) Development through nymphal stage (1)
  - (b) Excretion of uric acid (1)
13. Correct difference any two (1+1)
14. Correct answer
  - (a) Cloaca - 1
  - (b) Typhlosole – (1)
15. Correct answer.
  - (a) Adaxial epidermis of grass colorless cells. When flaccid leaf rolling  
( $\frac{1}{2} + \frac{1}{2}$ )
  - (b) Endodermis of root ( $\frac{1}{2}$  ), impervious to water ( $\frac{1}{2}$ )
16. Biomolecules with unidentifiable function ( $\frac{1}{2}$  ) , any two example ( $\frac{1}{2}$ )

OR

K<sub>(5)</sub>, C<sub>5</sub>, A<sub>6</sub>, G<sub>(3)</sub>



17. Structure – 1

Function – 1

18. Correct answers.

- (a) Zygotene of Meiosis –I
- (b) Deplotene of meiosis- I
- (c) S- phase of Interphase
- (d) Pachytene of Meiosis - I

19. Correct answers.

- (a) Chlorophyll a, b ( ½ )
- (b) Starch ( ½ )
- (c) Chlorophyll, a, c and fucoxanthin.( ½ )
- (d) Manitol and laminarin .( ½ )
- (e) Chlorophyll a, d and phycoerythrin. .( ½ )

20. Correct answers.

- (a) Homo sapiens ( ½ )
- (b) Primata.( ½ )
- (c) Muscidae.( ½ )
- (d) Diptera.( ½ )
- (e) Triticum aestivum.( ½ )
- (f) monocotyledonae.( ½ )

21. Correct answers

- Plasmogamy (1), karyogamy (1), meiosis (1)

22. Correct answers.

- Tight junction – stop leaking substances across the cell.(1)
- Adhering junctions - cementing neighboring cells.(1)
- Gap junctions – transport of material across the cell.(1)

23. Correct diagram and each labeling ½ marks.

OR

- isogamy (1)
- anisogamy(1)
- oogamy(1)

24. Correct answers

- (a) Parietal (1)
- (b) Sclerenchyma (1)
- (c) Companion cell (1)

25. Correct answer

- (i) Ligament (1)
- (ii) Stratified squamous epithelium. (1)
- (iii) Adipose tissue (1)

26. Any correct differences (1X 3)

27. Metacentric, sub-metacentric, acrocentric and telocentric (3)

28. Correct answer.

- (a) Tympanum (1)
- (b) Malpighian tubule(1)
- (c) Inside the cocoon. (1)
- (d) Statocyst(1)
- (e) Cardiac muscles. (1)

OR

Diagram 2 ½ marks and description 2 ½ marks

29. Definition (1) marks , correct six classes (4 marks)

OR

(f) Tonoplast(1)

(a) Lecithin (1)

(b) Lysosomes(1)

(c) Plasmodesmata(1)

(d) Large no. of ribosomes attached to single mRNA.(1)

30. Correct definition (1), correct name (4 marks)

OR

Structure with diagram 3 marks

Function – 2 marks

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### SET-II

1. Name two red algae from which 'agar' is obtained and used commercially in culture of bacteria. (1)

**Ans : Gracilaria and Gelidium (1)**

2. Cyanobacteria like Nostoc can fix atmospheric nitrogen by means of specialized cells. Name that cell. (1)

**Ans: Heterocyst. (1)**

3. Write four differences between Chondrichthyes and Osteichthyes. (2)

Ans: each correct difference  $\frac{1}{2}$  marks

4. Name the components present in a nucleotide. Mention any two nucleotides. (2)

**Ans: pentose sugar + nitrogen base + phosphoric acid (1)**

**Correct nucleotide name (  $\frac{1}{2}$  X 2)**

5. Answer the following questions: (3)

(j) Name the respiratory root present in Rhizophora (Mangrove)?

(k) The main axis terminates with flower. The flowers are borne in a basipetal order. Write the type of inflorescence.

(l) Name the type of placentation in which placenta forms a ridge along the ventral suture of ovary.

Ans:

**(a) Pneumatophore (1)**

**(b) Cymose (1)**

**(c) Marginal (1)**

**(d) Based on the type of pigments what are different types of plastids present in plants? (3)**

6. Based on the type of pigments what are different types of plastids present in plants? (3)

**Ans: Chloroplast (1)**

**Chromoplast (1)**

**(Leucoplast (1)**

\*\*\*\*\*

**SET – III**

1) Name two hydrocolloid obtained from algae and are used commercially.(1)

**Ans: algin and carrageen.**

2. Bacteria reproduce sexually by transferring DNA from one to other. What you call to that process. (1)

**Ans: Conjugation (1)**

3. What are the two distinct stages found in moss gametophytes? (2)

**Ans : Protonema and leafy stage.**

4. Write one example of acidic, basic, neutral and aromatic amino acid. (2)

**Ans: each correct answer ½ marks.**

5. Answer the following questions: (3)

(a) Why the leaflets of compound leaf are not considered as simple leaf?

(b) What do you mean be monoadelphous condition?

(c) What technical term used for sterile stamen?

**Ans: (a) leaflets do not have auxiliary bud. (1)**

**(b) All the filaments fused to form one bundle (1)**

**(c)Staminode (1)**

(6) What is leucoplast? Classify them according to the function they perform.



**Ans: correct definition (1)**

**Correct classification (1)**

**Correct function (1)**

\*\*\*\*\*

**Prepared by**

**H.K. Giri. PGT (Bio)**

**JNV DHENKANAL ODISHA (BHOPAL REGION)**

**Any suggestion feels free to contact: 09437100397**

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