BLUE PRINT OF BIOLOGY Annual examination

CLASS XI

S.No.	Types of question	No. Of questions	marks	total
1	Very Short	5	1	5
2	SA-1	4	2	8
3	SA-2	11	3	33
4	VALUE BASED	1	4	4
5	LONG ANSWERED	2	5	10
6	OTBA	3	5+2+3	10
	TOTAL			70

DELHI PUBLIC SCHOOL BAHADURGARH

Sample Paper1

Class-XI **1st SEMESTER EXAMINATION** **MM: 70**

BIOLOGY (THEORY) **Duration: 3 hours**

General Instructions

1. The question paper comprises of five Sections A, B, C, D and E.

2. All questions are compulsory.

3. There is no overall choice however; internal choice has been provided in one question of 2 marks, one question of 3 marks and all the two questions of five marks category. Only one option in such question is to be attempted.

4. Questions1 to 5 in section A are very short questions of one mark each. These are to be answered in one word or one sentence each.

5. Questions 6 to 9 in section B are short questions of two marks each. These are to be answered in approximately 20-30 words each.

6. Questions 10 to 20 in section C are questions of three marks each. These are to be answered in approximately 30-50 words each. Question 21 is of 4 marks.

7. Questions 22 to 23 in section D are questions of five marks each. These are to be answered in approximately 80-120 words each.

8. Questions 24 to26 in section E is based on OTBA of 10 marks.

Section – A

Q.1 What is nitrification?

Q.2 What is Kranz anatomy?

Q.3 What role does RuBP play in the plant physiology?

Q.4What is meant by reflex arc?

Q.5

Section - B

Q.6 During resting potential, the axon membrane is polarised. Indicate the movement of positive and negative ions leading to polarization diagrammatically.

Q.7 In old age , people often suffer from stiff and inflamated joints. What is this condition called? What are the two possible reasons for these symptoms?

Q.8 Why is respiratory pathway referred to as amphibolic pathway? Explain.

Q.9 The role of ethylene and abscisic acid is both positive and negative. Justify the statement.

Section - C

Q.10 Calcium ion concentration in blood affects muscle contraction. Does it lead to tetany in certain cases? How will you correlate fluctuation in blood?

Q.11 Draw a well labelled diagram of L.S of human kidney.

Q.12Differentiate between oxidative phosphorylation and photophosphorylation.

Q.13 A cyclic process occurs in C3 plants, which is light dependant and needs O_2. This process does not produce energy, rather consumes energy.

a) Can you name the given process?

b) Is it essential for survival?

c) What are the end products of this process?

d) Where does it occur?

Q.14 How are the contractile proteins arranged in a striated muscle fibre? Supplement your answer with the help of a labelled diagram.

Q.15 Do different species of plants growing in the same area show the same rate of transpiration at a particular time. Justify your answer.

Q.16 Depict the chemiosmotic hypothesis with the help of a neat and labelled diagram.

Q.17 Explain the process of Glycolysis in the form of a flow chart mentioning the various enzymes taking part in the process.

Q.18 Give a brief account of the growth phases in plants.

Q.19 How does counter current mechanism work in the nephrons in concentrating the filtrate?

Q.20 Give an account of the type and number of vertebras present in the column.

Value Based Question

Q.21Radha was running on a tread mill ata great speed for 15 minutes continuously. She stopped the tread mill and abruptly came out. For the next few minutes, she was breathing heavily. Answer the following questions:

a) What had happened to her muscles when she did strenuous exercise?

b) How did her breathing rate change?

c) What precautions she should have taken while coming off the tread mill?

Section – D

Q.22 Explain in detail about the structure of human eye and the mechanism by which the image is formed on the retina of the eye.

OR

Explain in detail about the structure of the inner ear in humans. Briefly tell about the role played by the inner ear.

Q.23 Explain the molecular mechanism of hormone action for the protein hormones. Supplement your answer with diagram.

OR

a) Give a brief account of the hormones secreted by the anterior lobe of pituitary gland. 3

b) How does placenta act as an endocrine gland? Explain 2

Section – E (OTBA)

DELHI PUBLIC SCHOOL BAHADURGARH

ACADEMIC SESSION 2015-16

Class-XI **1st SEMESTER EXAMINATION** **MM: 70**

BIOLOGY (THEORY) **Duration: 3 hours**

Answer Key

S1.No`	Answers	Marks

1	It is the oxidation of Ammonium Nitrogen to Nitrate Nitrogen	**1**
2	**It is a specific internal organisation of leaves having large chlorenchymatous bundle sheath cells wrapped vascular strand and undifferentiated mesophyll forming concentric layers around vascular bundles.**	**1**
3	**RuBP acts as a Carbon dioxide acceptor during the carboxylation process during Calvin cycle.**	**1**
4	**Reflex arc is the pathway formed of the neurons involved in reflex action.**	
5		
6	**Diagram of Na –K pump.**	**2**
7	**a) Rheumatoid Arthritis** **b) i) Inflamation of synovial membrane due to infection or allergy** **ii) Increased secretions of synovial fluid which puts a pressure on the joint.**	**1** **0.5** **0.5**
8	**As Amphibolic pathway is the one which has both catabolic and anabolic ramifications.**	**2**
9	**Ethylene promotes transverse growth but inhibits longitudinal growth, essential for ripening of fruits.** **ABA opposes the growth promoting effect of auxins and induces dormancy.**	**1** **1**
10	**Yes. Tetany is hyper –excitability of nerves and muscles due to decrease in concentration of calcium in blood.** **Reason: i) Hypoparathyroidism** **ii) Vitamin D deficiency** **iii) Alkalosis Due to ingestion of excess alkaline salts.**	
11	**L.S of human kidney.**	
12	**Oxidative : Occurs in iner membrane of mitochondria** **ii) it is the formation of ATP during respiration** **iii) it happens during aerobic respiration** **Photophosphorylation: i) Occurs over thylakoid membrane** **ii) It is the formation of ATP during photosynthesis** **iii) only in green cells when they receive radiant energy.**	
13	**a) Photorespiration** **b) Not essential for the life** **c) Glycolic acid and alcohol** **d) Bundle sheath cells**	
14	**Contractile fibres are arranged in crisscross manner to hold each other to help the contraction.** **Supplement the answer with diagram**	
15	**All the plantsin a given area doesn't show same rate of transpiration as thedistribution of stomata is not even**	
16	**Diagram with labels of ATP synthesis.**	
17	**Explanation of glycolytic steps and the diagram (flow Chart) with enzymes**	
18	**Phases of growth a)formative** **b) reproductive** **c) differentiative**	
19	**Tubules run in the opposite directions in the nephrons and it helps in reabsorption of the solutes**	
20	**Cervical** **Thoracic,** **Lumbar** **Coccycal**	
21	**a) Muscles experience continuous contraction**	

	b)Breathing rate increases many fold due to increased heart beat and pumping c) She should have got out of the treadmill after slowing it down gradually.	
22	**Structure of the human eye with its all the pats explained .Supplementary diagramwith labels OR Structure Of human ear with all the parts explainedandsupplenetary diagram**	
23	**Protienhormoneaction to be explained and with labelleddiagram explaining the hormone action**	
24		
25		
26		

DELHI PUBLIC SCHOOL BAHADURGARH

Sample paper

TERM ENDING EXAMINATION

BIOLOGY

Class: XI **MM:70**

Date:

Duration: 3 hrs

Total pages: 3

General Instructions:

i) This question paper is having 26 questions divided into FIVE sections.

ii) Section A contains 5 questions, Section B contains 5 questions, Section C contains 12 questions and question no.21 is a Value Based question.Section D contains2 question, Section E contains 3 questions.

iii) Question 23 is a value based question.

iv) There is no overall choice but there are choices in 2 questions of Section C and all the questions of Section D.

v) Draw diagrams wherever necessary. Draw diagrams with pencil and label neatly.

SECTION A

1. How can the age of a tree be determined? 1
2. What ismeant by glycosidic bond? 1
3. Where is Electron Transport System operative in mitochondria? 1
4. Draw a graphical representation of oxygen dissociation curve. 1
5. Whattype of modified roots are seen in (a) Banyan tree and (b) Mangroves. 1

SECTION B

6. What is the chemical difference between saturated and unsaturated fatty acids? 2
7. Explain the exarch and endarch conditions of xylem. 2

8. Define the term isotonic and solute potential. 2
9. What is meant by apoplast pathway? Why doesit occur in cortex but not in endoderm? 2

SECTION C

10. Describe the competitive inhibition of enzyme activity with an example. 3
11. Differentiate the C3 and C4 pathways of photosynthesis. 3
12. Explain the initiation of muscle contraction.What is therole of sarcoplasmic reticulum,myosin head and F actin during contraction of striatedmuscles? 3
13. Describe the process of crossing over. State its significance. 3
14. Bring out the role of haemoglobin in the transport of respiratory gases. 3
15. What is systemic circulation? Describe its importance. Why are the walls of the ventricle more muscular than the walls of auricle? (1+1+1=3)
16. Draw alabelled diagram of female reproductive system of cockroach. 3

Or

Draw a labelled diagram of digestive system of Frog.

17. Enumerate the essential qualities of an element to become the macronutrient for the plant body. 3
18. Give an explanatory role of any two contrasting phytohormones. 3
19. What are the key features of interphase of cell division? 3
20. Discuss the structure of plasma membrane as explained under fluid mosaic model.3
21. **Anand a 14 year old boy thinks smoking makes him more energetic and feels like adult and makes him more responsible citizen. He tries to smoke whenever he is with his peer group. His friend Rohit advised him the ill effect of smoking and later Anand quit smoking.**
    a) **What values do you find in Rohit? 1**
    b) **What is the main reason of smoking addiction in young children? 1**
    c) **What are theill effects of smoking? 2**

SECTION D

22. Describe the process of cyclic photophosphorylation with diagram 5

Or

Draw a labelled diagram of ultrastructure of nephron and explain the role of

ultrafiltration in formation of urine.

23. Draw a labelled diagram of a dicotyledonous root. 5

Or

Draw a labelled diagram of Monocot Stem.

SECTION E

24. OTBA

25. OTBA

26. OTBA

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DELHI PUBLIC SCHOOL BAHADURGARH

ACADEMIC SESSION 2015-16

TERM ENDING EXAMINATION

BIOLOGY

Class: XI **MM:70**

Answer key

Q.no	Answers	Marks
1	Age can be determinedby counting the annual rings on the lower part of the stem.	1
2	It is a bond between monosaccharides to form di and polysaccharides	1
3	In the inner mitochondrial membrane	1
4	Chapter 17.transport of oxygen	1
5	Banyan tree: Prop trees and Mangroves:Pneumatophores	1
6	Saturated fats have single bonds and unsaturated have multiple double and triple bonds.	2
7	In roots protoxylem lies to the centre and metaxylem lies to the periphery such arrangement is called as exarch In stems protoxylem lies to the periphery and the metaxylemliesin the centre such arrangement	2
8	If the solution balances the osmotic concentration of cytoplasm	2
9	Movement of water through theintercellular spaces in cellwall without entering the cell is apoplast pathway. It occurs through cortex only as these cells are loosely arranged.	2

10	**Phenomenon in which a substance closely resembling thesubstrate competes with it for the active site on the enzyme.E.gMalonate resembles succinate and it inhibits the action of succinate dehydrogenase.It is used to control bacterial pathogens.**	**3**
11	**C3 : a) primary acceptor is RuBP** **b) The first product id PGA** **c) Enzyme is sensitive to high temperature** **C4 : a) Primary acceptor is PEP** **b) Primary product is OAA** **c) Not affected by high temperature and oxygen conc**	**3**
12	**A nerve impulse arriving attheneuromuscular junction initiates contraction.neurotransmitterentersthesarcomere through membrane channel. Opening of channel results in influx of sodium ions in sarcomere. Conformational changes ossurintroponin and the activesites on f actin exposes.**	**3**
13	**Crossing over is a process of bringing out the variations by exchanging the segments of chromosomes.**	**3**