

# **MODEL QUESTION PAPER**

# **BIOLOGY**

Standard - X



**GOVERNMENT OF KERALA  
GENERAL EDUCATION DEPARTMENT**

**SCERT, 2006 - '07**

**STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING (SCERT)  
Vidyabhavan, Poojappura, Thiruvananthapuram - 12, Kerala**



# Design of the Question Paper

No-1

## BIOLOGY - Std X

### Weightage to the Units/CO

യൂണിറ്റ്	സ്കോർ	ശതമാനം
1	4	8
2	12	24
3	8½	17
4	6½	13
5	8	16
6	7	14
7	4	8
<b>ആകെ</b>	<b>50</b>	<b>100%</b>

### WEIGHTAGE TO TYPE OF QUESTIONS

Objective		SA		Essay	
Score	% of score	Score	% of score	Score	% of score
19½	39	22½	45	8	16

### BLUE PRINT

Unit/CO	Type of Questions				Score
	Objective	SA	Essay	Others	
1	1	3	--		4
2	1½	10½	--		12
3	2½	4	2		8½
4	2½	--	4		6½
5	5	1	2		8
6	5	2	--		7
7	2	2	--		4
<b>Total</b>	<b>19½</b>	<b>22½</b>	<b>8</b>	<b>--</b>	<b>50</b>

# MODEL QUESTION PAPER-I

STANDARD X

**BIOLOGY**

**TOTAL SCORE : 25**

**INSTRUCTIONS**

**TIME 1½ hrs**

- 1 Read questions carefully before answering the questions.
- 2 Calculations, figures and graphs should be shown in the answer sheet itself
- 3 All the questions are compulsory and only internal choices are allowed.
- 4 When you select a question, all the sub questions must be answered from the same question itself.
- 5 First 15 minute is cool off time during which you should not answer the questions. This time is meant to read the questions carefully.

I. Observe the given table with a set of 4 terms in column A. In each set, one term is odd and cannot be grouped in to the category to which the other three belong. Pick out the odd one in each set and enter it in column B. Identify the common features of the remaining three items and note it down in column C.

[Attempt any four.]

1½ x4 = 6

	A	B	C
<b>Model</b>	<b>Globulin, Fibrinogen, Haemoglobin, Albumin</b>	<b>Haemoglobin</b>	<b>Plasma proteins</b>
<b>1</b>	<b>Thyroxin, Acetycholine, Oxytocin, Vasopressin</b>		
<b>2</b>	<b>Touch, Pressure, Heat, Pain</b>		
<b>3</b>	<b>Gibberellin, Cytokinin, Ethylene, Musk</b>		
<b>4</b>	<b>ECG, Echocardiograph, EEG, Angiogram</b>		
<b>5</b>	<b>Paramecium, Spirillum, Amoeba, Entamoeba histolytica.</b>		
<b>6</b>	<b>Dengue fever, Poliomyelitis, Botulism, Japanese encephalitis.</b>		

2. Identify the relationship between the first pair in each set and complete the second pair.?

1. Energy stored in plant tissues : 50% of absorbed energy, Energy stored by herbivores:-..... 1
2. Balance of the body : Cerebellum; Homeostasis; ----- 1
3. Night blindness : Rhodopsin; Colour blindness:----- 1

Total score: 3

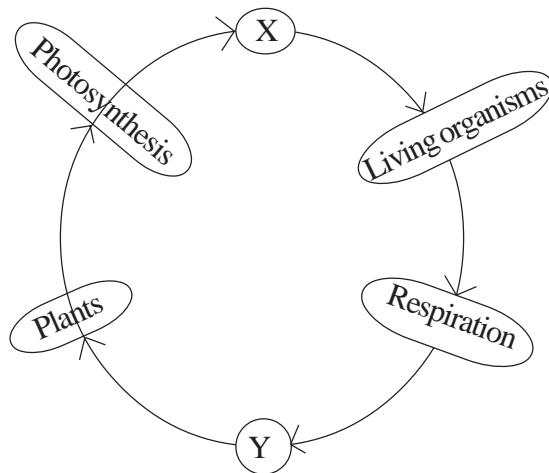
3. The data taken from the case sheet of a patient is given below. Analyse the data and select the most appropriate conclusion from the list. 1

<p style="text-align: center;">Hb = 8 gm.</p> <p style="text-align: center;">BP = 100/ 60 mm</p> <p>*Hb. = Haemoglobin</p> <p>*BP= Blood pressure.</p>
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**Conclusions**

- A- Both Haemoglobin and Blood pressure is less than the average.
- B- Affected by Anaemia and Hypertension.
- C- Affected by Anaemia and Hypotension
- D- Affected by Anaemia.

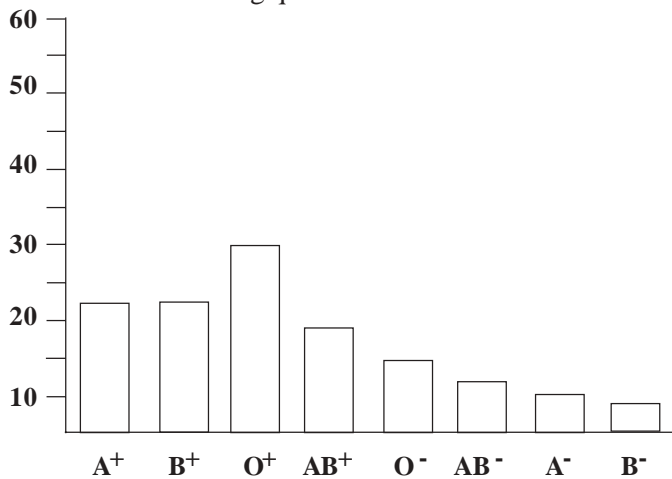
4. Observe the illustration given below. and answer the following questions.



1. Name the words that indicate X and Y. 1
2. Draw another diagram by replacing Y in the place of X and X in the place of Y. 2

Total score:3

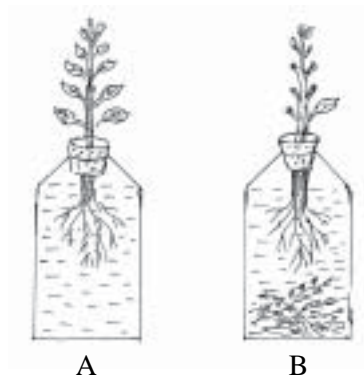
5. A graph drawn on the basis of blood groups of people living in a particular area is given below. Analyse it and try to answer the following questions. Total Score: 3



1. Which is the most commonly seen blood group in that area? ½
2. 'Majority of the people have blood with Rh factor' - Analyse the statement. 1
3. Mr. Babu, who lives in that area have the most rare blood group. As a part of the treatment, blood transfusion is necessary for him once in every six months. Is it is advisable for him to receive B<sup>+</sup> blood? Give reason? 1½

Total score: 3

6.

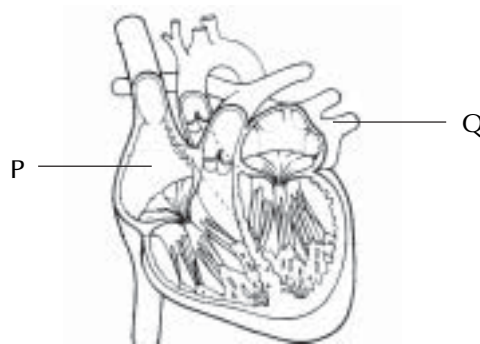


Study the above diagram. The concentration of salts in the solution of A and B is almost the same. Aquatic plants are put in B. Both bottles are kept in sunlight.

1. Which bottle possesses high oxygen concentration why? 1
2. Which plant possesses high rate of water conduction through the stem? 1
3. In which bottle the rate of salt absorption is more? Why? 2

7.A

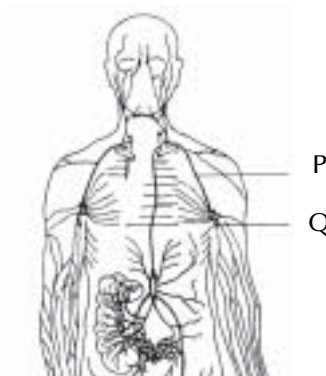
Total Score: 4



1. Name the parts labelled P and Q in the above diagram. 1
2. Which of the chambers of heart contain more oxygen? 1
3. Is there a chance for reverse flow of blood to the atrium when ventricles contracts? Justify your answer. 2

**OR**

B.



1. Name the parts labelled P and Q in the above diagram 1
2. In what way the fluid that flows through P is related to blood? 1
3. How does our body react against the infections? Explain on the basis of illustration. 2

Total score:4

8. Re-arrange columns B and C to match column A.

Total Score: 4

	A	B	C
1.	Antibody	Oxygen Transport	Red blood Cells
2.	Antibiotic	Artificial Immunity	Neutrophil
3.	Phagocytosis	Medicines	Pulse polio
4.	Immunisation	Quick response	Lymphocyte
		Slow response	Allergy

9. "By the combined action of endocrine system and nervous system, our body is able to overcome emergency situations". List out any two physical and physiological changes of a person who tries to overcome an emergency situation. Analyse the above statement on the basis of your list. 4

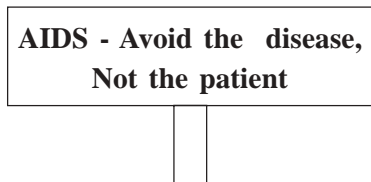
10. Re arrange the items in right order in each box.

1. Cell body, Stimulus, Dendrite, Axon, Dendrite of adjacent neuron, Axonite, Synapse. 2

2. Muscles in hand, Interneuron, Sensory neuron, Withdrawing hand, Receptors in the finger, Motor neuron. Touching a hot object with the finger. 2

Total score: 4

11.

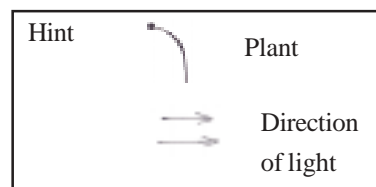
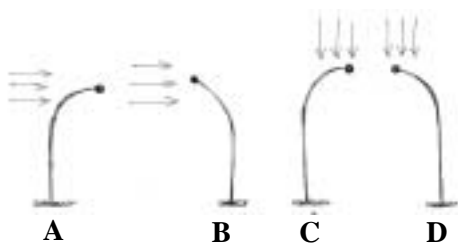


A placard prepared by a student on the 'World AIDS DAY' is shown above.

- Name the germ that causes AIDS. 1
- Do you agree with the above statement? Analyse it and give your suggestions. 2

12.

Total Score: 3



Observe the above illustration. A to D.

- Which is the most suitable one? 1
- Name the type of plant movement illustrated there? 1
- Which peculiarity of auxins is responsible for this movement? 1

Total Score: 3

13.A

Charles Darwin  
Natural Selection  
Mutation

**P**

Hugo De Vries  
Mutation  
Natural selection

**Q**

Jean Baptiste Lamark  
Acquired deviation  
Natural selection

**R**

1. What is the common idea derived from these boxes. 1
2. Charles Darwin- Natural selection- Construct another pair like this. 1
3. Relate the data in Box P and prepare notes. 2

OR

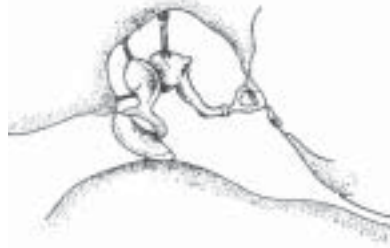
13. B

Fossils  
Tadpole  
Archeopterix  
Embryological evidence  
Reptiles and Birds

1. What is common to all in the box. . 1
2. Make two logical pairs using the data 1
3. Analyse the data and make two conclusions? 2

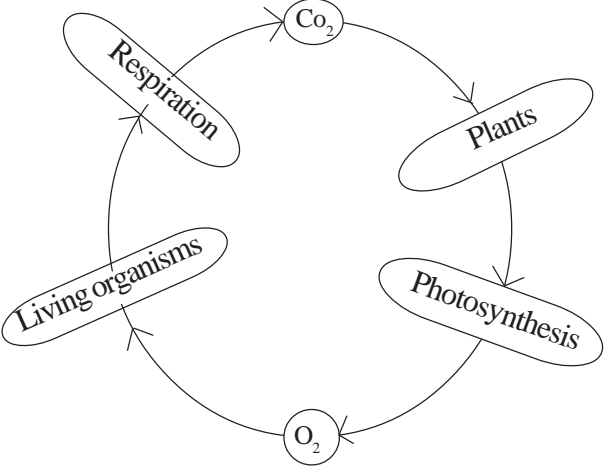
Total Score 4

14.



Copy the diagram and label the parts.

1. The part which regulates the air pressure.
2. The bone which is connected to tympanum.
3. The bone which is connected to the oval window. 4

No	SCORING KEY	No	
		Score	Total
1.	1. Acetyl choline - Hormones 2. Pain - Stimulus Known through receptors 3. Musk - Plant hormones 4. EEG - Cardiac treatment 5. Spirillum - Protozoans 6. Botulism - Viral diseases	1½ 1½ 1½ 1½	6
2	1. 10% of received 2. Hypothalamus 3. Iodopsin	1 1 1	3
3	1. Affected anaemia and Hypotension	1	1
4	1. X- Oxygen 2. Y- CO <sub>2</sub>	½ ½	3
	Re-drawing diagram in right order. 	2	
	1. O+ blood group 2. Agree. All positive groups contain Rh factors 3. Not possible. (Justification)	½ 1 1½	3
	1- B bottle 2- B plants 3- B Oxygen release in more due to the presence of aquatic plants.	1 1 2	4
7.A	1. P = Right atrium Q = Pulmonary Vein 2. Left atrium, Left ventricle 3. Action of bi-cuspid and Tri-cuspid Valves (Justification, Place of valves)	½ ½ ½ + ½ 2	4



No	SCORING KEY	No			
		Score	Total		
7.B	1. P = Lymph vessel Q = Lymph gland	½	4		
	2. Lymph originated from blood / returns to blood / contains some factors as in blood. (Any one)	½			
		1			
	3. Importance of Lymphatic system in the process of body defence. WBC in Lymph node (glands resist germs/ ingest germs (Phagocytosis) produce antibodies etc.)	2			
8	A	B	C	4	
	1. Antibody	Slow response	Lymphocyte.		1
	2. Antibiotic	Medicines	Allergy		1
	3. Phagocytosis	Quick response	Neutrophil		1
	4. Immunisation	Artificial immunity	Pulsepolio	1	
9	Listing any two physical and biological activities	½ + ½	4		
	Combined action of Nervous system and endocrine gland system in emergency situation (Explain)	3			
10	Appropriate organisation of information , as		4		
	1. Stimulus - Dendrite - Cellbody - Axon - Axonite - Synapse - Dendrite of adjacent neuron.	2			
	2. Touching a hot object with the finger- Receptors in the finger - sensory neuron - Inter neuron - motor neuron - Muscles in hand - withdrawing hand.	2			
11	1. HIV	1	3		
	2. Agree (Justification / Analysis, conclusion/ Suggestions)	2			
12	1. B	1	3		
	2. Phototropism / Tropic movement	1			
	3. Auxins are inactive in the presence of sunlight.	1			
13.A	1. Evolutionary Theory	1	4		
	2. Hugo De Vries - Mutation / Jean Baptiste Lamarck - Acquired deviation	1			
	3. Theory of Darwin. (Explanation)	2			
B	1. Evidence of organic evolution	1	4		
	2. Fossils - Archeopterix / Tadpole - Embryological evidence.	½ + ½			
	3. Correct conclusions related to Fossils as evidence / embryological evidence/ Evolution of birds from reptiles.	2			
14	Re-drawing the diagram	1	4		
	1. Eustachian tube	1			
	2. Malleus	1			
	3. Stapes	1			

## QUESTION WISE ANALYSIS

Sl.No.	CO	Unit	Type of Qns	Mental process	Score	Total Score	Time
	8,4	3,5	Objective	3	1½		
	12	4	Objective	3	1½		
	13,15	5	Objective	3	1½	6	8
I	10,5	3,2	Objective	3	1½		
	16	6	Objective	3	1½		
	16,18	6	Objective	3	1½		
II	1	1	Objective	6	1		
	8	3	Objective	6	1	3	3
	11	4	Objective	6	1		
III	4,5	2	Objective	2,6		1	2
IV	2	1	Short A	6,7,9		3	7
V	4	2	Short A	3,5,6,9	1½	3	7
			Objective	5,6,7	1½		
VI	3	2	Objective	1,5	4	4	7
			Short A	1,5			
VII A	5	2	S A (3 nos)	1,5	4	4	8
B	6	2	SA (3 nos)	1,5	4		
VIII	17	6	Objective	3,4	1		
	17	6	Objective	3,4	1	4	5
	18	6	Objective	3,4	1		
	18	6	Objective	3,4	1		
IX	9,14	3,5	Essay	5,6,7	4	4	7
X	7	3	SA	4	2		
	8	3	SA	4	2	4	5
XI	16	6	Objective	1	1		
	16	6	SA	10	2	3	6
XII	13	5	Objective	1,5,7	1	3	
	13	5	Objective		1		
	13	5	SA		1		
XIII A	19	7	Objective	3,4	1		
	19	7	Objective	7	1	4	
	19	7	SA	4,7	2		
B	19	7	Objective	3	1	4	7
	19	7	Objective	4	1		
	19	7	SA	7	2		
XIV	11	4	Essay	5	4	4	8