

Version No.			

ROLL NUMBER						



0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
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9	9	9	9

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1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

Answer Sheet No. \_\_\_\_\_

Sign. of Candidate \_\_\_\_\_

Sign. of Invigilator \_\_\_\_\_

**BIOLOGY SSC-I**  
**SECTION – A (Marks 12)**  
**Time allowed: 15 Minutes**

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. **Do not use lead pencil.**

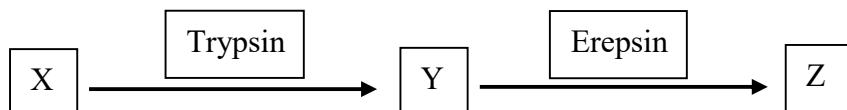
**Q.1 Fill the relevant bubble for each part. All parts carry one mark.**

- (1) Which one of the following branches of biology deals with the study of functions of heart?
- |               |                       |                 |                       |
|---------------|-----------------------|-----------------|-----------------------|
| A. Morphology | <input type="radio"/> | B. Physiology   | <input type="radio"/> |
| C. Histology  | <input type="radio"/> | D. Cell biology | <input type="radio"/> |
- (2) Hardness of a seed coat is due to:
- |             |                       |            |                       |
|-------------|-----------------------|------------|-----------------------|
| A. Sclereid | <input type="radio"/> | B. Fibre   | <input type="radio"/> |
| C. Tracheid | <input type="radio"/> | D. Vessels | <input type="radio"/> |
- (3) Following are the characteristics of a good hypothesis, **EXCEPT**:
- |  |                       |
|--|-----------------------|
| A. Should be a complex statement           | <input type="radio"/> |
| B. Should be a tentative idea              | <input type="radio"/> |
| C. Should be testable                      | <input type="radio"/> |
| D. Should agree with available observation | <input type="radio"/> |
- (4) Which one of the following scientific name is according to the binomial nomenclature?
- |                        |                       |                        |                       |
|------------------------|-----------------------|------------------------|-----------------------|
| A. <i>Oryza Sativa</i> | <input type="radio"/> | B. <i>oryza sativa</i> | <input type="radio"/> |
| C. <i>Oryza sativa</i> | <input type="radio"/> | D. <b>ORYZA SATIVA</b> | <input type="radio"/> |
- (5) Select the one which is “**NOT**” the characteristic of a Prion:
- |                             |                       |
|-----------------------------|-----------------------|
| A. Composed of protein only | <input type="radio"/> |
| B. Can replicate            | <input type="radio"/> |
| C. Cause disease in sheep   | <input type="radio"/> |
| D. Contain circular RNA     | <input type="radio"/> |
- (6) Many enzymes require cofactors for their proper working. Different cofactors belong to different groups. Pick the odd one:
- |                     |                       |               |                       |
|---------------------|-----------------------|---------------|-----------------------|
| A. Vitamin A        | <input type="radio"/> | B. Coenzyme A | <input type="radio"/> |
| C. NAD <sup>+</sup> | <input type="radio"/> | D. Haem group | <input type="radio"/> |

- (7) If a cell does not undergo S-phase, one of the following events cannot take place:
- A. Increase in number of organelles
- B. Synthesis of protein
- C. Replication of DNA
- D. Increase in size of cell
- (8) Identify the event where mitosis will **NOT** take place:
- A. RBC replacement  B. Gamete formation
- C. Grass propagation  D. Wound healing
- (9) After strenuous exercise you get tired because skeletal muscles accumulate:
- A. Lactic acid only  B. Ethyl alcohol
- C. Lactic acid and CO<sub>2</sub>  D. Ethyl alcohol and CO<sub>2</sub>
- (10) If a person gets injured, which type of WBCs will release histamine?
- A. Neutrophil  B. Eosinophil
- C. Basophil  D. Lymphocyte
- (11) In the given animal cell, which labelled part is responsible for the oxidation of food in the cell:



- (12) The diagram given below shows some stages of digestion. Choose the best option for the action of Trypsin and Erepsin enzymes:



	X	Y	Z	
A	Protein	Amino acid	Polypeptide	<input type="radio"/>
B	Amino acid	Protein	Polypeptide	<input type="radio"/>
C	Polypeptide	Amino acid	Protein	<input type="radio"/>
D	Protein	Polypeptide	Amino acid	<input type="radio"/>



Federal Board SSC-I Examination  
Biology Model Question Paper  
(Curriculum 2006)

Time allowed: 2.45 hours

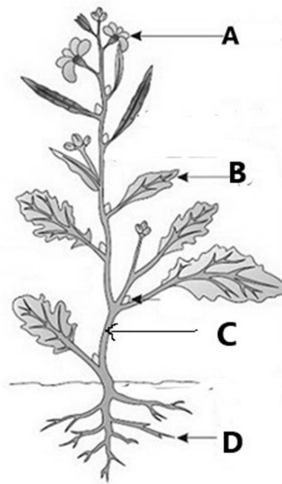
Total Marks: 53

Note: Answer any eleven parts from Section 'B' and attempt any two questions from Section 'C' on the separately provided answer book. Write your answers neatly and legibly.

**SECTION – B (Marks 33)**

Q.2 Attempt any **ELEVEN** parts from the following. All parts carry equal marks. Be brief and to the point. (11× 3 = 33)

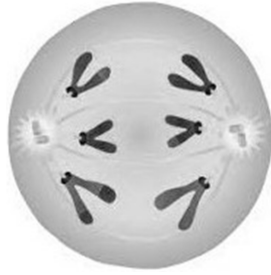
i. Answer the following questions related to the Mustard plant



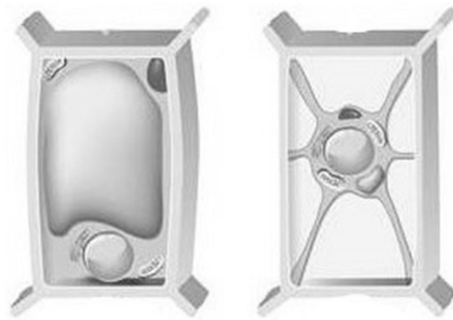
- Name the level of organization exhibited by the Mustard plant. Also write its scientific name. (1)
  - Mention the role of part A in the given plant. (1)
  - Identify the part C and D of the plant on the basis of their function?(1)
- ii. How did Ronald Ross prove the deduction, “**Plasmodium should be present in mosquito**”?
- iii. Suppose a doctor is examining the group of children suffering from Rickets and anaemia:
- Name the food components the children are lacking in their diet. (1)
  - What is the importance of those food components in human body? (2)
- iv. Briefly describe the problem of Protein Energy Malnutrition.
- v. Which kingdom does Euglena belong to? Give reason for its placement. Enlist any three characteristics of that kingdom. (0.5+1+1.5)
- vi. Complete the table related to epithelial tissue

	Tissue name	Location	Function
a		Alveoli of lungs	
b	Columnar epithelium		
c			Transport through tubes

- vii. Enlist the effects of pollution on biodiversity.
- viii. The figure given below is of a dividing cell:

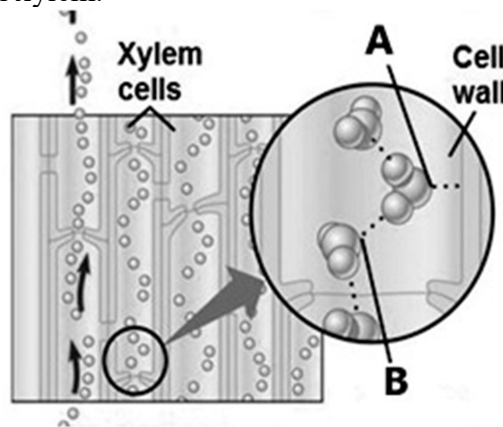


- a. Identify the phase and type of cell division. (01)
  - b. State the events taking place in this phase of cell division. (02)
- ix. What is the affect of temperature on enzyme activity? Support your answer with a graph.
  - x. Give reasons why:
    - a. does death of heart muscles take place during Myocardial infarction?
    - b. are RBCs biconcave in shape? (1.5x2=3)
  - xi. In the given figure, plant cells are placed in hypotonic and hypertonic solutions.



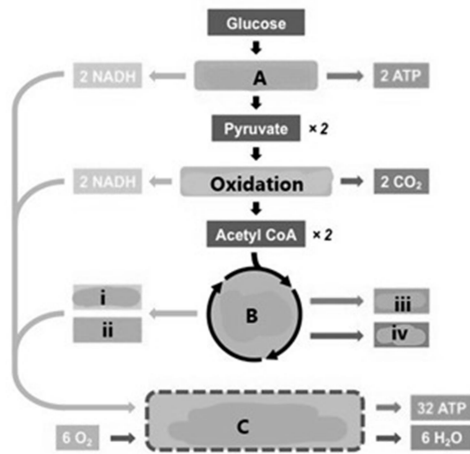
Evaluate the effects of these solutions on plant cells.

- xii. Give reasons as to why: (1x3=3)
  - a. A person with blood type O is universal donor
  - b. Veins have low blood pressure as compared to arteries
  - c. In humid air transpiration rate is less
- xiii. The figure given below shows part of mechanism for the movement of water through xylem.



- a. Identify forces A and B. (1)
- b. Despite of the gravitational force, how does the upward movement of water take place through xylem? (2)

- xiv. The given flow chart illustrates the aerobic respiration. Answer the questions related to it: (1+2)



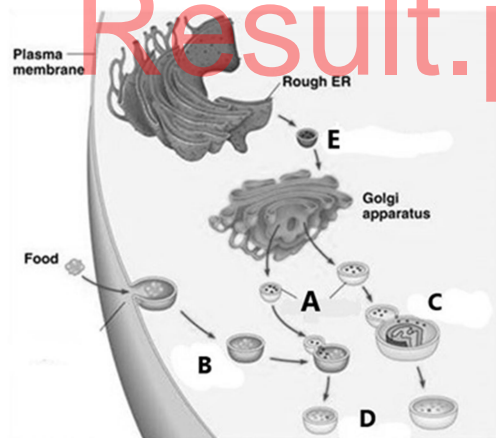
(a) Name the phases of aerobic respiration	(b) Label the products of phase B of respiration
A.	i.
B.	ii.
C.	iii.
	iv.

- xv. Why ATP is important for the cell? Give complete name of ATP. (3)

### SECTION – C (Marks 20)

**Note:** Attempt any **TWO** questions. All questions carry equal marks. (2×10 = 20)

- Q.3** a. Identify the causes and effects of deforestation. (2+2)  
 b. List the events of light dependent reactions with the help of Z scheme diagram. (4+2)
- Q.4** Heart acts as a pumping organ in body. Explain the structure and function of human heart along with the diagram. (4+3+3)
- Q.5** a. Answer the questions related to the cell organelles shown in figure.



- i. Identify the organelle A. (0.5)  
 ii. Label the steps C, D and E. (1.5)  
 iii. Enlist the functions of organelle A. (3)
- b. How does the processes of swallowing and peristalsis take place in humans? (3+2)

\* \* \* \* \*

Biology SSC-I  
SLOs  
(Curriculum 2006)

**SECTION – A**

**Q.1 Encircle the correct option i.e. A / B / C / D. All parts carry equal marks.**

- (1) Define the branches of biology i.e. morphology, anatomy, physiology, embryology, taxonomy, cell biology, histology, paleontology, environmental biology, biotechnology, socio-biology, parasitology, immunology, entomology, genetics, pharmacology.
- (2) Describe the major plant tissues i.e. simple tissues (meristematic tissues, permanent tissues) and compound tissues (xylem tissues and phloem tissues) in terms of their cell specificities, locations and functions.
- (3) Describe the steps involved in biological method i.e. recognition of a biological problem, observation and identification, building up hypotheses, drawing deductions, devising experiments and inferring results (malaria as an example).
- (4) Describe using local examples, the importance of Binomial nomenclature.
- (5) Rationalize that there are sub-cellular particles, such as viruses and prions, which have some characteristics of living things.
- (6) State that some enzymes require co-factor for their functioning.
- (7) Predict the importance of S-phase of the Interphase.
- (8) Describe the significance of meiosis as leading to the formation of haploid cells, that may function directly as gametes as in animals or may divide by mitosis as in plants, fungi and many protists.
- (9) Describe the importance of Anaerobic Respiration.
- (10) List the functions of the components of blood.
- (11) Identify the structure and describe, in general terms, the functions of the components of plant and animal cell.
- (12) Sort out the actions of Enzymes in specific regions of alimentary canal, with respect to their substrates & products

**SECTION – B** (Marks 33)

**Q.2 Attempt any ELEVEN parts from the following. All parts carry equal marks. Be brief and to the point. (11 × 3 = 33)**

- i. Compare cellular organization in organisms i.e. unicellular organization (Amoeba), colonial organization (Volvox) and multicellular organization (mustard and frog). (Only brief comparison referring to cellular organization is required. Details of organs and organs-systems of frog and mustard should be avoided)
- ii. Describe the steps involved in biological method i.e. recognition of a biological problem, observation and identification, building up hypotheses, drawing deductions, devising experiments and inferring results (malaria as an example).
- iii. Describe the food sources and metabolic functions of Calcium and Iron.
- iv. Describe the problems of Protein Energy Malnutrition (PEM), Mineral Deficiency Diseases (MDD), and Over Intake of Nutrients (OIN).
- v. Describe the diagnostic characteristics of the five kingdoms.

- vi. Describe the major animal tissues (epithelial, connective, muscular and nervous) in terms of their cell specificities, locations and functions.
- vii. Explain the impact of human beings on biodiversity.
- viii. State the separation of chromatids during anaphase.
- ix. Explain the effect of pH, temperature and concentration of substrate on the activity of an enzyme.
- x. (a) State the causes, treatments and prevention of Myocardial infarction.  
(b) State the relationship between cell function and cell structure (for absorption - root hair cells; conduction and support - xylem vessels; transport of oxygen - red blood cells).
- xi. Define turgor and describe its importance. Describe the phenomena of plasmolysis and explain its relationship with osmosis.
- xii. (a) List the appropriate donors and recipients for each of the four blood groups.  
(b) Compare the structure and function of an artery, a vein and a capillary.  
(c) Describe temperature, wind and humidity as the factors affecting the rate of transpiration.
- xiii. Explain the movement of water in terms of transpirational pull.
- xiv. Outline the mechanism of respiration while defining Glycolysis, Krebs cycle and Electron Transport Chain.
- xv. Explain ATP as a molecule that is the chief energy currency of all cells.

### **SECTION – C** (Marks 20)

**Note:** Attempt any **TWO** questions. All questions carry equal marks. (2×10 = 20)

- Q.3** a Identify causes of deforestation and its effects on biodiversity.  
b Outline the processes (Light and Dark reactions) involved in photosynthesis.
- Q.4** Describe the external and internal structure of human heart. Describe the circulation of blood through atria and ventricles of the heart, explaining the role of the bicuspid, tricuspid and semilunar valves. Explain how the heart is structurally adapted to its functions. Define the terms heartbeat, heart rate and pulse rate.
- Q.5** a. Identify the structure and describe, in general terms, the functions of the components of plant and animal cell.  
b. Describe swallowing and peristalsis.

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**BIOLOGY SSC I**  
**Table of Specifications**

Assessment Objectives	Unit 1: Introduction to Biology	Unit 2: Solving a Biological problem	Unit 3: Biodiversity	Unit 4: Cells and Tissues	Unit 5: Cell Cycle	Unit 6: Enzymes	Unit 7: Bioenergetics	Unit 8: Nutrition	Unit 9: Transport	Total Marks	Percentage
<b>K (Knowledge)</b>	Q1(1) 1 Q2(i) 3	Q2(ii) 3	Q3(a) 4	Q1(2) 1		Q2(ix) 3	Q2(xv) 3	Q2(iii-a) 1 Q2(iii-b) 2 Q2(iv) 3		24	27.6%
<b>U (Understanding)</b>		Q1(3) 1	Q2(v) 3 Q2(vii) 3	Q1(5) 1 Q2(vi) 3 Q5(a) 5	Q1(7) 1 Q1(8) 1 Q2(viii-a) 1 Q2(viii-b) 2	Q1(6) 1	Q1(9) 1 Q 3(b) 6	Q5(b) 5	Q1(10) 1 Q 4-10	45	51.7%
<b>A (Application)</b>			Q1(4) 1	Q1(11) 1 Q2(x-b) 1.5 Q2(xi) 3			Q2(xiv) 3	Q1(12)1	Q2(x-a) 1.5 Q2(xii) 3 Q2(xiii) 3	18	20.7%
<b>Total Marks</b>	4	4	11	15.5	5	4	13	12	18.5	87	100%

**KEY:**

1(1)(01)  
Question No (Part No.) (Allocated Marks)