

Version No.			

ROLL NUMBER						



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2	2	2	2
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1	1	1	1	1	1	1
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Answer Sheet No. _____

Sign. of Candidate _____

Sign. of Invigilator _____

BIOLOGY SSC-I (2nd Set)
SECTION – A (Marks 12)
Time allowed: 15 Minutes

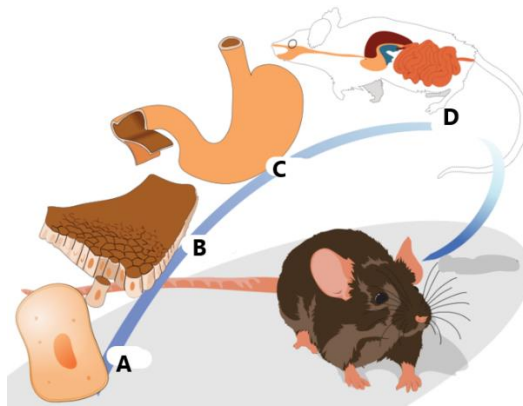
Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. **Do not use lead pencil.**

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

(1) Bacteria are used for making insulin. Which branch of biology it is?

- A. Physiology B. Histology
 C. Cell biology D. Biotechnology

(2) Following diagram shows level of organization in a rat. Which one is the organ level?



- A. B.
 C. D.

(3) Which option has correctly matched disease and vector mosquito?

	Malaria in humans	Malaria in birds	Dengue fever
A	<i>Anopheles</i>	<i>Aedes</i>	<i>Culex</i>
B	<i>Aedes</i>	<i>Culex</i>	<i>Anopheles</i>
C	<i>Anopheles</i>	<i>Culex</i>	<i>Aedes</i>
D	<i>Culex</i>	<i>Anopheles</i>	<i>Aedes</i>

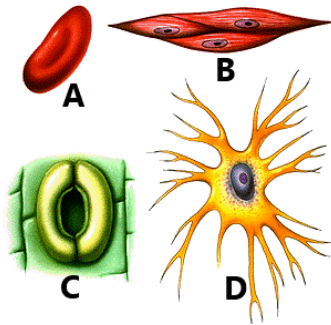
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(4) Which cell is a prokaryote?



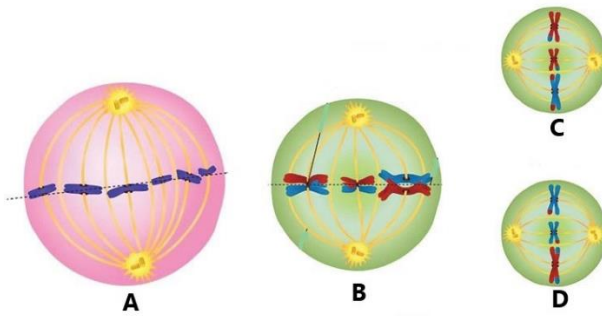
- A. Cell A B. Cell B
 C. Cell C D. Cell D

(5) The diagrams show cells from different types of tissues (not drawn on scale). Which type of cell contracts when it is stimulated?



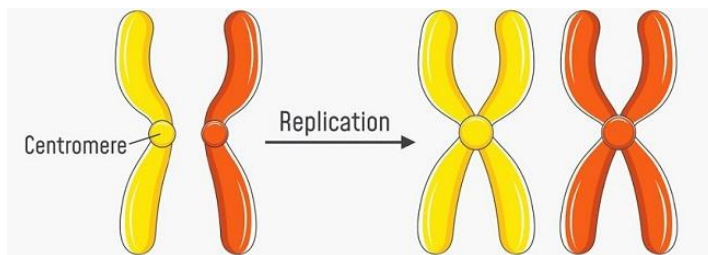
- A. Cell A B. Cell B
 C. Cell C D. Cell D

(6) Which of the following cell is at Metaphase I stage?



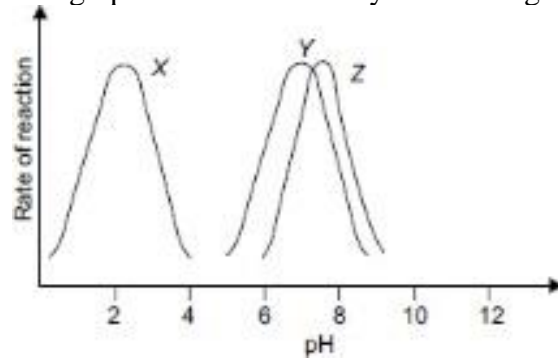
- A. B.
 C. D.

(7) The replication of chromosomes is represented below.



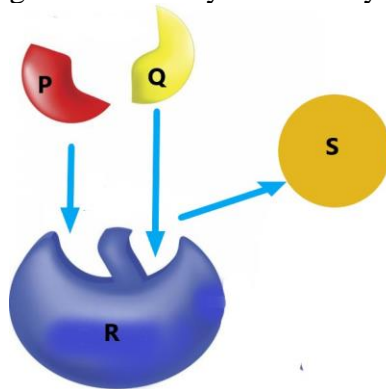
- What is the total number of chromosomes in this diagram?
 A. 2 B. 3
 C. 4 D. 6

- (8) The graph relates the activity of three digestive enzymes at different pH levels.



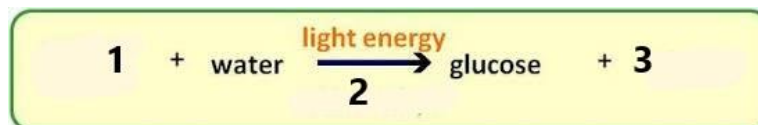
Which statement is correct?

- A. Enzyme X and Y are both active at pH 7
- B. Enzyme X and Z are both active at pH 4
- C. Enzyme Y and Z are both active at pH 4
- D. Enzyme Y and Z are both active at pH 7
- (9) The diagram shows a synthesis enzyme with substrates and product.



Which components will form enzyme substrate complex?

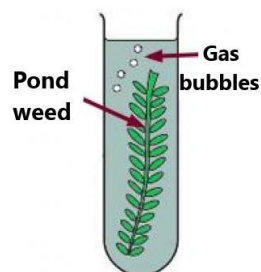
- A. P, Q and S
- B. P, Q and R
- C. Q, R and S
- D. P, R and S
- (10) The following equation for photosynthesis is incomplete.



What do the numbers represent?

	1	2	3	
A	Carbon dioxide	Oxygen	Chlorophyll	<input type="radio"/>
B	Carbon dioxide	Chlorophyll	Oxygen	<input type="radio"/>
C	Oxygen	Chlorophyll	Carbon dioxide	<input type="radio"/>
D	Chlorophyll	Oxygen	Carbon dioxide	<input type="radio"/>

- (11) The diagram shows a pond weed in a test tube filled with water. Which conditions would cause the plant to produce more bubbles?



	Dissolved carbon dioxide	Light	Temperature
A	Present	Bright	Cool
B	Present	Bright	Warm
C	Present	Dim	Cool
D	Absent	Dim	Warm

-
-
-
-

- (12) Which one of the following is atherosclerosis:
- A. Breaking of the walls of the arteries
 - B. Widening of arteries
 - C. Deposition of fats in the walls of the arteries
 - D. Hardening of arteries



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

Time allowed: 2.45 hours

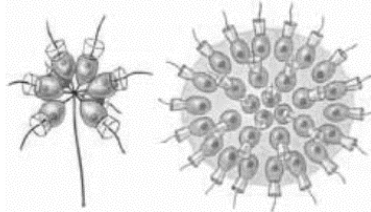
Total Marks: 53

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)

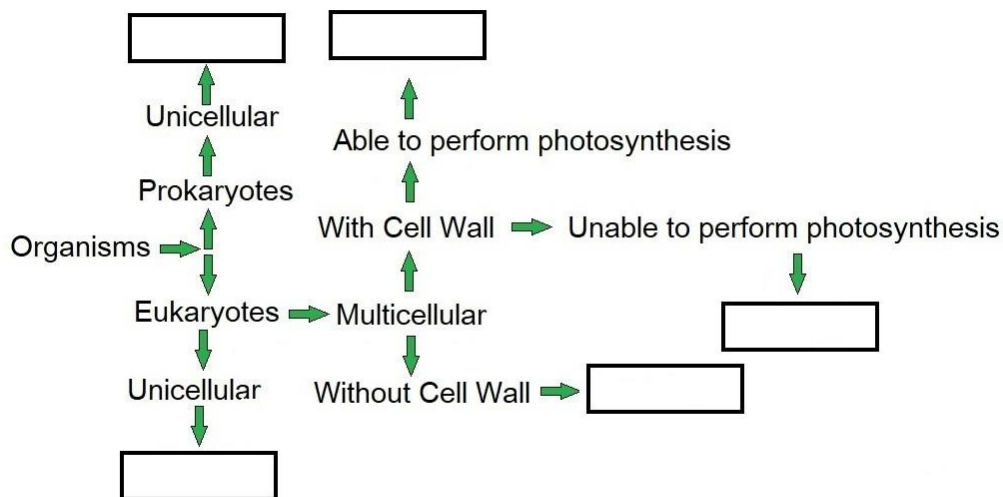
Q.2 Attempt any **ELEVEN** parts from the following. All parts carry equal marks. Be brief and to the point. (11 × 3 = 33)

i. The following diagram shows two colonial organisms.



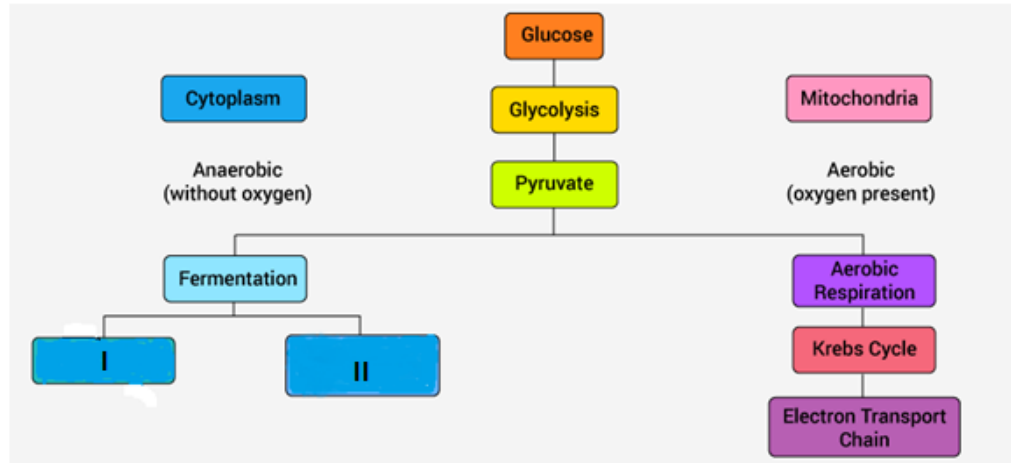
When their cells were separated from each other, all cells were able to survive. Explain why?

- ii. What is filtration? Give example to clarify it.
- iii. Observations are mainly of two types i.e., qualitative and quantitative. Describe them with the help of examples.
- iv. Complete the following flow chart according to five kingdom classification system.



- v. Which tissue is responsible for the transport of water and dissolved substances in plants. Describe its structure.
- vi. In rapidly dividing cells which phase of cell cycle is reduced? Explain.
- vii. Visualize what safety factor is there in releasing the pepsin in its inactive form.
- viii. How does meiosis lead to variation in genes?

- ix. According to induced fit model, the active site is flexible. Does it mean that any substrate can attach with this flexible active site? If not, then explain.
- x. Where are chloroplast and leucoplast found in plants? Write down their functions.
- xi. The diagram shows flow chart about types of cellular respiration.



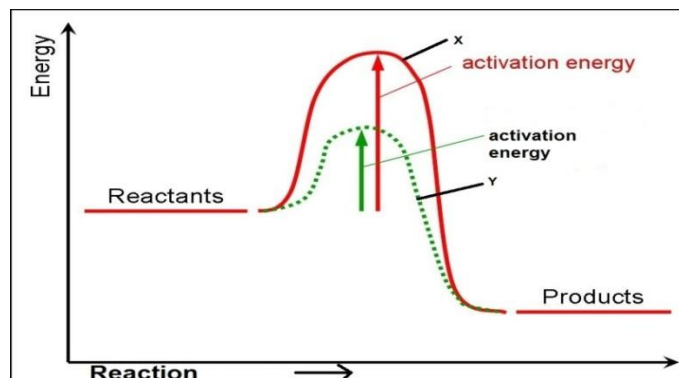
- a. Name the products I and II
 - b. Categorize the types of anaerobic respiration and give their importance.
- xii. Following table shows the names of three enzymes found in alimentary canal. Complete the Table by writing names of substrate and end-product for each enzyme.

Name of enzyme	Substrate	End -product
Protease		
Amylase		
Lipase		

- xiii. A child caught a small jelly fish from ocean in a bottle. After reaching home he placed it in a bucket of tap water. What will happen to the cells of jelly fish?
- xiv. Draw a table showing names of any three arteries arising from dorsal aorta and the organ to which they supply blood.

Name of arteries	Supply blood to the organ

xv.



- a. A graph is drawn for two reactions. Identify the graphs X or Y as catalyzed or non catalyzed reaction?
- b. Support your answer with reasons.

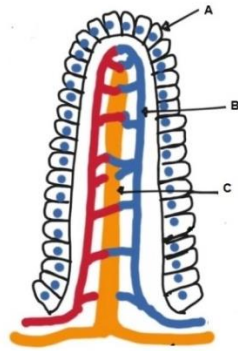
SECTION – C (Marks 20)

Note: Attempt any **TWO** questions. All questions carry equal marks.

(2×10 = 20)

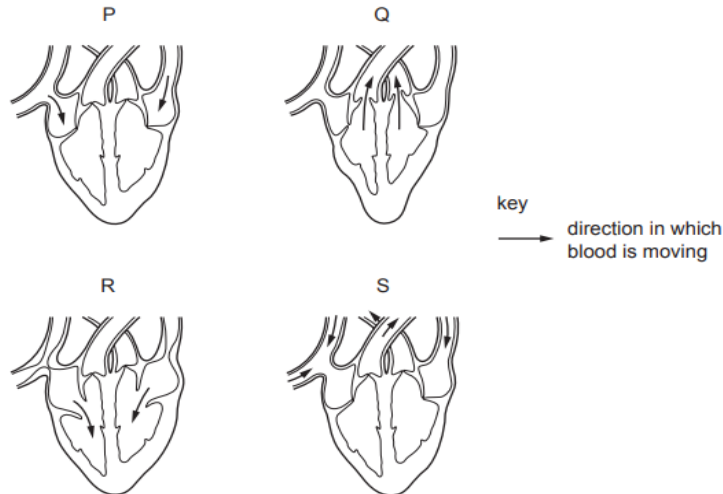
Q.3 a.

(2+1+2)



- i. Name the structure and label it's A, B and C parts.
- ii. Mention its function in the digestive tract.
- iii. Explain the absorption of:
 - ▶ Glucose and amino acid
 - ▶ Fatty acids and glycerol

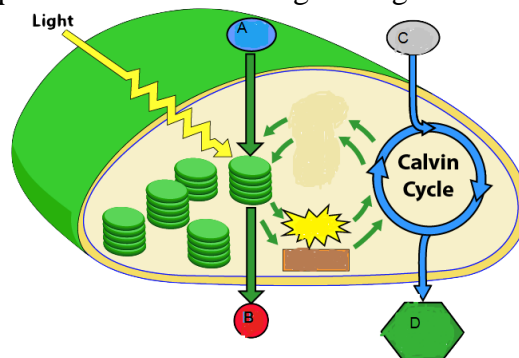
b. The diagram shows four stages of heart beat. Identify the labelled diagram in which: (5)



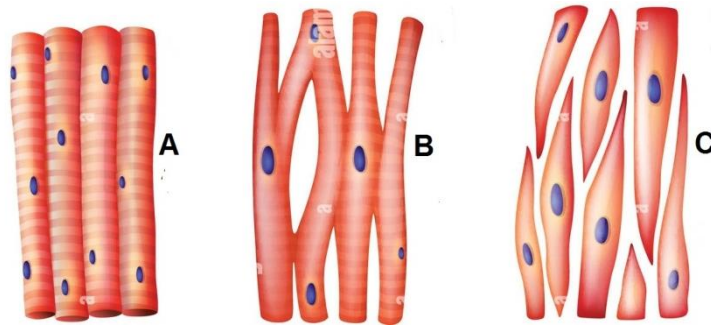
- i. Tricuspid valve is open
- ii. Left atrium is relaxed
- iii. Aortic semilunar valve is open
- iv. Right ventricle is contracted
- v. Write the correct order for the stages of heart beat.

Q.4 a. Answer the questions related to the given figure.

(1+3+2)



- i. This figure is depicting the overview of photosynthesis. Identify the input A, B and output C, D of photosynthesis.
 - ii. Enlist the events that take place in stroma of chloroplast with the help of flow chart.
- b.** Observe following tissues. (1.5+ 2.5)



- i. Recognize the type of cells A, B & C.
 - ii. Write characteristics of each of them.
- Q.5 a.** Describe absorption of water and minerals in plants. Draw labelled internal structure of dicot root and show the path of water uptake by arrows. (3+2)
- b.**
- i. Biodiversity plays important role in maintaining ecosystem. Enumerate the reasons for conservation of biodiversity. (3+2)
 - ii. What are the major issues we are facing in Pakistan for conserving biodiversity?

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BIOLOGY SSC-I (2nd Set)

Student Learning Outcomes Alignment Chart (Curriculum 2006)

SECTION – A

Q.1

- (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 level of organization of life (organelles, cells, tissues, organs and organ systems and individuals).
- (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) Assess the capabilities of Prokaryotic and Eukaryotic Cells, owing to the presence or absence of nucleus and mitochondria
- (5) Determine ways in which various types of cells contribute to the healthy functioning of the human body (*e.g., describe the roles of individual cells in nerves, muscle, blood, skin and bone*).
- (6) Describe the events taking place in Metaphase-I.
- (7) Predict the importance of S-phase of the Interphase.
- (8) Explain the effect of pH, temperature and concentration of substrate on the activity of an enzyme.
- (9) Describe, through equation, that enzyme substrate complex is formed and release of enzyme takes place after completing the reaction.
- (10) State the equation (in words or symbols) for photosynthesis.
- (11) Explain the concept of limiting factors in photosynthesis.
- (12) Define cardiovascular disorders and differentiate between Atherosclerosis and Arteriosclerosis.

SECTION – B

Q.2

- i. Compare cellular organization in organisms i.e. unicellular organization (*Amoeba*), colonial organization (*Volvox*) and multicellular organization (mustard and frog).
- ii. Describe the phenomena of diffusion, facilitated diffusion, osmosis, filtration, active transport, endocytosis and exocytosis.
- iii. 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).
- iv. Rationalize that Five-kingdom classification system better explains diversity of living organisms.
- v. 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.
- vi. Define Cell Cycle and describe its main phases i.e. Interphase and Division.

- vii. Sort out the action of enzymes in specific regions of alimentary canal with respect to their substrates and their products.
- viii. Describe the significance of meiosis with reference to the recombination of genes that leads to variations.
- ix. Relate that specificity of enzyme is due to its shape.
- x. Assess the capabilities of animal and plant cell types, owing to the presence or absence of chloroplasts and cell wall.
- xi. Describe anaerobic respiration by means of word and symbol equation. Describe the importance of Anaerobic Respiration.
- xii. Sort out the action of enzymes in specific regions of alimentary canal, with respect to their substrates and products.
- xiii. Describe the phenomena of plasmolysis and explain its relationship with osmosis.
- xiv. Identify the main arteries and veins in charts, diagrams, models etc.
- xv. Describe the concept of energy of activation and how it is lowered by enzyme.

SECTION – C

- Q.3**
- a.** Describe the structure of a villus, including the roles of capillaries and lacteals. Describe the significance of villi in increasing the internal surface area.
 - b.** Describe the circulation of blood through atria and ventricles of the heart, explaining the role of the bicuspid, tricuspid and semilunar valves.
- Q.4**
- a.** Outline the processes (Light and Dark reactions) involved in photosynthesis.
 - b.** Describe the major animal tissues (epithelial, connective, muscular and nervous) interms of their cell specificities, locations and functions.
- Q.5**
- a.** Describe how roots take up water and mineral salts by active and passive absorption.
 - b.** Enumerate the reasons for conservation of biodiversity. Describe some of the issues of conservation in Pakistan (especially with regard to deforestation and hunting).

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BIOLOGY SSC I (2nd Set)

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
K (Knowledge)	1(1)1	2(iii)3		1(4)1 1(5)1 2(ii)3 2(v)3 4(b)4				2(xii)3	2(xiv)3 5(a)5	27	31%
U (Understanding)	2(i)3		2(iv)3 5(b)5	2(x)3	1(6)1 1(7)1	1(8)1 1(9)1 2(ix)3 2(xv)3	1(10)1 2(xi)3 4(a)6	2(vii)3 3(a)5	1(12)1	43	49.4%
A (Application)	1(2)1	1(3)1		2(xiii)3	2(vi)3 2(viii)3		1(11)1		3(b)5	17	19.5%
Total Marks	5	4	8	18	8	8	11	11	14	87	100%

KEY:

1(1)(01)

Question No (Part No.) (Allocated Marks)

Note: (i) The policy of FBISE for knowledge based questions, understanding based questions and application based questions is approximately as follows:

- 30% knowledge based.
- 50% understanding based.
- 20% application based.

(ii) The total marks specified for each unit/content in the table of specification is only related to this model question paper.

(iii) The level of difficulty of the paper is approximately as follows:

- 40% easy
- 40% moderate
- 20% difficult