

Version No.			

ROLL NUMBER						



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Answer Sheet No. _____

Sign. Of Candidate _____

Sign. of Invigilator _____

BIOLOGY HSSC–I
SECTION–A (Marks17)
Time allowed: 25 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/over writing is not allowed. **Do not use lead pencil.**

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

- Identify heteropoly saccharide from the following:

A. Chitin	<input type="radio"/>	B. Glycogen	<input type="radio"/>
C. Pectin	<input type="radio"/>	D. Cellulose	<input type="radio"/>
- Glycolysis is a process that:

A. Produces ATP and NADH	<input type="radio"/>
B. Produces ATP only	<input type="radio"/>
C. Is NOT anetproducer of energy rich molecules	<input type="radio"/>
D. Consumes as much ATPs is produced	<input type="radio"/>
- Carnivorous adaptations of plants mainly compensate for soil that has relatively low content of:

A. Water	<input type="radio"/>	B. Calcium	<input type="radio"/>
C. Nitrogen	<input type="radio"/>	D. Potassium	<input type="radio"/>
- Wood consists mainly of:

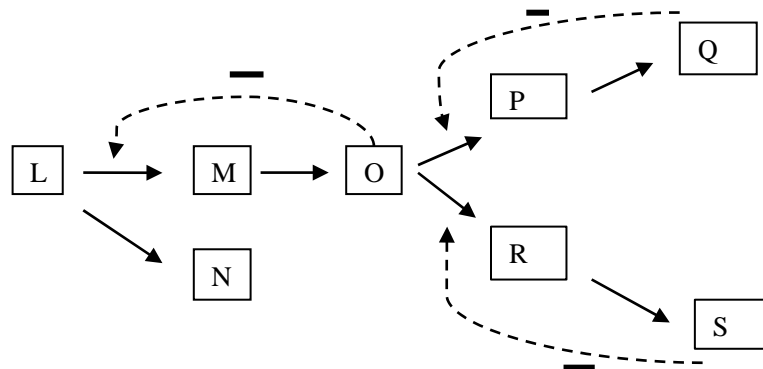
A. Bark	<input type="radio"/>	B. Secondary xylem	<input type="radio"/>
C. Cork	<input type="radio"/>	D. Secondary phloem	<input type="radio"/>
- What does the P wave representing an ECG?

A. Depolarization of the atria	<input type="radio"/>
B. Depolarization of the ventricles	<input type="radio"/>
C. Repolarization of the ventricles	<input type="radio"/>
D. Depolarization of the atria and ventricles	<input type="radio"/>
- Photo respiration is a problem for plant growth because it:

A. Consumes excess CO ₂ during the day	<input type="radio"/>
B. Consumes excess CO ₂ during the day and night	<input type="radio"/>
C. Effectively undoes the work of photosynthesis by releasing CO ₂	<input type="radio"/>
D. Provides additional means of releasing energy from fuel molecules	<input type="radio"/>

7. In contrast to kingdom Animalia and Plantae, the organisms of kingdom Fungi have:
 A. A cell wall B. Centrioles in cells
 C. Hetero trophic mode of nutrition D. Nuclear mitosis
8. Which one of the following is not common to all divisions of vascular plants?
 A. Development of seeds
 B. Alternation of generations
 C. Xylem and phloem
 D. Dominance of diploid generation
9. Which one of the following subdivisions of the animal kingdom includes all the others in the list?
 A. Protostomes B. Deuterostomes
 C. Bilateria D. Coelomates
10. A certain poison disrupts the cytoskeleton of cell. Choose one of the following function that would be affected most probably by the poison?
 A. Digestion with in lysosomes B. Protein synthesis
 C. Cell division D. Cellular respiration
11. Aslam want to study the detailed function of glyoxysomes as cell organelles. Suggest one of the following materials that will be more suitable for his research?
 A. Muscle cells B. Mesophyll cells
 C. Radish root cells D. Oilseeds

12. In the following branch metabolic pathway, adotted line with aminus sign symbolizes inhibition of a metabolic step by an end product:

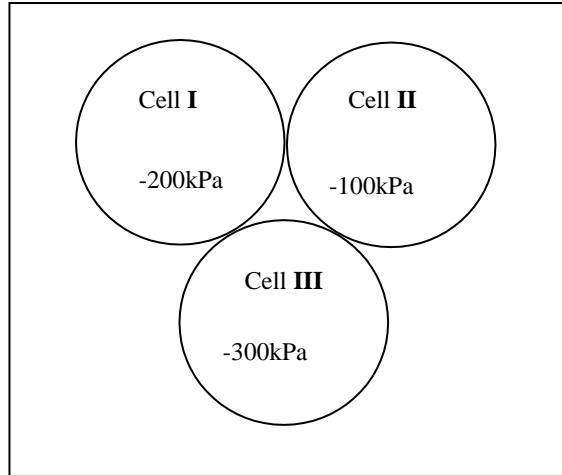


Which reaction would prevail if both Q and S are present in the cell in high concentration?

- A. $L \rightarrow M$ B. $M \rightarrow O$
 C. $L \rightarrow N$ D. $O \rightarrow P$
13. A microbiologist found that some bacteria infected by bacteriophages had developed the ability to make a particular amino acid that they couldn't make before. This new ability was probably a result of:
 A. Conjugation B. Transduction
 C. Induction D. Transformation
14. Only an animal species with diaphragm can be expected to have:
 A. Lungs B. Hair
 C. Feathers D. Moist skin

15. If a long day plant has a critical night length of 9 hours. Which one of the following 24 hours cycles will prevent flowering?
- A. 16 hours light/08 hours dark
- B. 14 hours light/10 hours dark
- C. 15.5 hours light/8.5 hours dark
- D. 08 hours light/08 hours dark/flash of light/08 hours dark

16. The given diagram illustrates three adjacent cells with different water potential:



The direction of movement of water molecules across the given cells would be:

- A. **I→II→III** B. **III→II→I**
- C. **II→I→III** D. **III→I→II**
17. After surgical removal of an infected gallbladder a person must be especially careful to restrict his/her intake of:
- A. Starch B. Sugar
- C. Fats D. Protein



**Federal Board HSSC-I Examination
Biology Model Question Paper
(Curriculum2006)**

Time allowed: 2.35hours

Total Marks: 68

Note: Answer all parts from Section 'B' and all questions from Section 'C' on the **E-sheet**.
Write your answers on the allotted/given spaces.

SECTION-B(Marks42)

Q 2. Attempt all parts from the following. All parts carry equal marks. (14×3 =42)

- i. Define
 a. Oligosaccharides b. Autophagy c. Virion (1+1+1)

OR

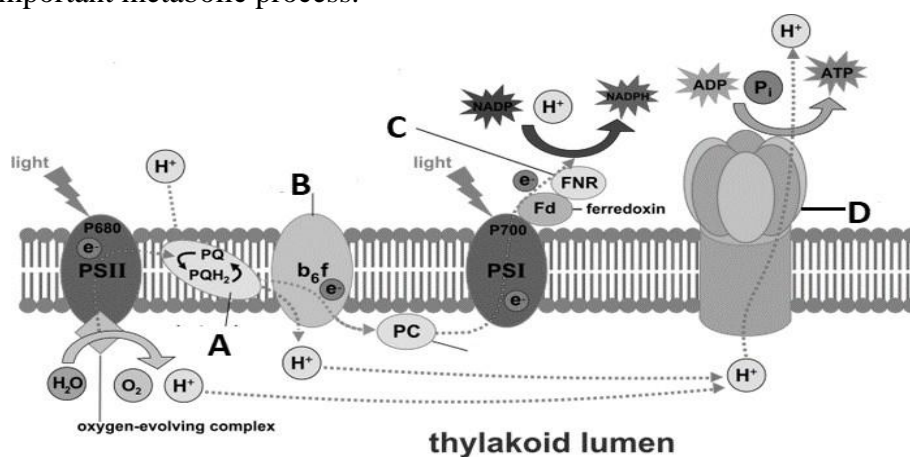
List the unifying features of Archea that distinguish them from Bacteria. (1+1+1)

- ii. Complete the following table. (0.5x6)

Diseases	Causative Agent
Tuberculosis	
	<i>Microsporium audouinii</i>
Soft rot in potato	
Athlete's foot	
	<i>Phytophthora infestans</i>
	<i>Salmonella typhi</i>

OR

In the following diagram a segment of thylakoid membrane is depicted showing an important metabolic process.



- a. Name the parts labelled as A,B, C and D. (1)
 b. Explain the process that is depicted in the diagram. (2)

- iii. Briefly explain any three land adaptations of Bryophytes. (1+1+1)

OR

Explain the mechanism action of irreversible non-competitive enzyme inhibitor. (3)

- iv. Classify animals on the basis of body cavity. (1+1+1)

OR

Classify viruses on the basis of capsid structure. (1+1+1)

- v. Elaborate the role of Pancreas as an exocrine gland. (3)

OR

Explain the role of Abscisic acid as plant growth regulator. (3)

- vi. Sketch a graph showing activation energies of enzyme catalyzed and non-enzyme catalyzed reactions. (1.5+1.5)

OR

Sketch the life cycle of plasmodial slime mold diagrammatically. (3)

- vii. How would you differentiate between Ascomycota and Basidiomycota? Show at least six features in a comparison table. (0.5x6)

OR

How would you differentiate between sporophyte and gametophyte generation of Fern (Adiantum)? List at least six features. (0.5x6)

- viii. Give three adaptations of Platyhelminthes for parasitic mode of life. (1+1+1)

OR

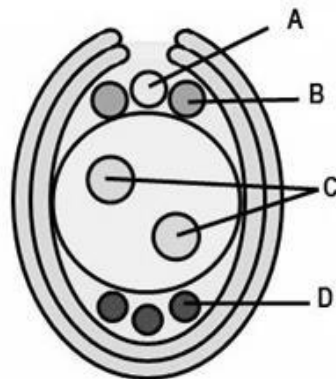
How endospore and exospore increase the survival rate of bacteria? (3)

- ix. List three ways, the fever kills microbes. (1+1+1)

OR

How does Neutrophils help in second line of defence? (3)

- x. Following is the diagram of an ovule of flowering plants.



- a. Correctly name the parts labelled as A,B,C and D. (2)
b. Which stage of the life cycle is represented by the labelled cells? (1)

OR

Complete the following table for the comparison of Chondrichthyes and Osteichthyes. (0.5x6)

Features	Chondrichthyes	Osteichthyes
Types of scales		
Endoskeleton made up of		
Number of gill pairs		

- xi. Differentiate between Hydrophytes and Xerophytes in tabular form for at least six features. (0.5x6)

OR

Differentiate between the different growth phases of bacteria with the help of growth curve. (03)

- xii. A particular small polypeptide is nine amino acids long. Using three different enzymes to hydrolyze the polypeptide at various sites, we obtained the following five fragments (N denotes the amino terminal of the polypeptide).
- Alanine-Leucine-Aspartic acid-Tyrosine-Valine-Leucine
 - Tyrosine-Valine-Leucine
 - N-Glycine-Proline-Leucine
 - Aspartic acid-Tyrosine-Valine-Leucine
 - N-Glycine-Proline-Leucine-Alanine-Leucine
- a. Determine the primary structure of this polypeptide. (2)
- b. Highlight the significance of amino acid sequence in proteins. (1)

OR

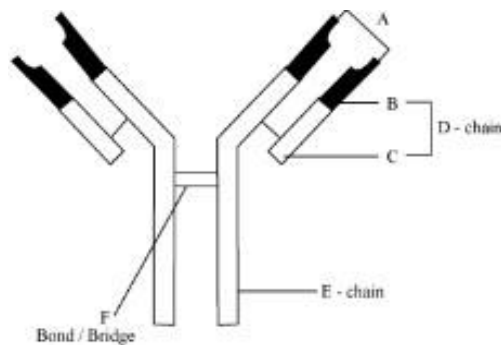
Apply your knowledge of Fungi to signify their role in genetic research. (3)

- xiii. Advise six changes in life style that could protect people from hypertension and cardiac problems. (0.5x6)

OR

Differentiate between Glycogen and Starch (three differences). (1+1+1)

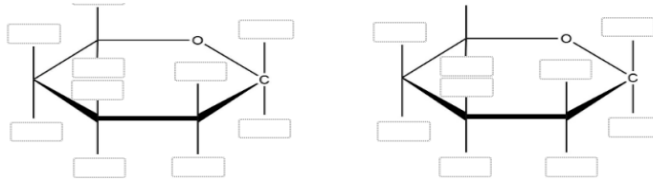
- xiv. Following is the diagram of an antibody:



- a. Correctly mention the names of the parts labelled as A,B, C, D, E and F. (1.5)
- b. Which type of human cells produces the antibodies? (0.5)
- c. List the four different modes of action of antibodies. (1)

OR

Following is the diagram of two monosacchrides



- a. Identify the disacchride which is formed by the reaction of above given two monosacchrides. (1)
- b. Label and draw the glycosidic linkage in the above given diagram. (2)

SECTION– C (Marks 26)

Note: Attempt all questions. Marks of each question are given within brackets.

- Q.3** Explain the formation, structure, functional role and disorders related to Lysosomes. (1.5x 4 = 6)

OR

Describe the chemical composition of nucleotides showing the structural formulae of all components. (6)

- Q.4** How CO₂ is converted into glucose during light independent reactions of photosynthesis? Also draw the relevant cycle. (2+2+1+2)

OR

How Asexual and sexual reproduction occurs in bacteria. Also draw diagrams only for sexual reproduction in bacteria. (1+2+2+2)

- Q.5** Explain the mechanism of translocation of organic solutes through phloem in plants? Also draw the diagram showing process of translocation. (4+2)

OR

Discuss the role of stomach in the process of chemical digestion mentioning role of all secretions. (1.5x4=6)

- Q.6** Elaborate the sequence of events that occur during cardiac cycle of humans. (5+2)

OR

Elaborate the life cycle of HIV in human body. Also draw life cycle. (5+2)
