Step Academy official

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STUDENT NAME	
PAPER CODE	39011
TIME ALLOWED	180
Paper Date	25-02-2026

CLASS	New 1st Year (FSC/ICS)
SUBJECT	Biology
TOTAL MARKS	100
Paper Type	

Q1. Choose the correct answer. **17X1=17**

1. How does the process of facilitated diffusion differ from active transport?

(A) Facilitated diffusion requires energy, active transport does not
(B) Facilitated diffusion does not require energy, active transport does
(C) Both processes require energy
(D) Both processes do not require energy

2. Which of the following takes the electrons lost by Photosystem I on absorption of light energy?

(A) Ferredoxin **(B)** Cytochrome **(C)** Cytochrome a-3 **(D)** Plastocyanin

3. In electron transport chain, FADH:H produces how many ATPs?

(A) One **(B)** Two **(C)** Three **(D)** Four

4. When sugar content in a cell increases the concentration of solute increases, what happens to the water potential?

(A) Raises **(B)** Drops **(C)** Unchanged **(D)** None of these

5. Which of the following is not a function of xylem?

(A) Transport of water **(B)** Transport of minerals **(C)** Transport of food **(D)** Mechanical support

6. The leaves of some hydrophyte float on the surface of water. In such a leaf, stomata are found in;

(A) Lower epidermis **(B)** Upper epidermis **(C)** Sides of leaf **(D)** Deep depressions in leaf

7. Deep depressions in leaf

(A) Moderate environments **(B)** Dry conditions **(C)** Water environments **(D)** All of above

8. What prevents food from entering the trachea during swallowing?

(A) Epiglottis **(B)** Oesophageal sphincter **(C)** Uvula **(D)** Tongue

9. Which change would most affect protein digestion?

(A) Blocking bile release **(B)** Inhibiting salivary glands **(C)** Inhibiting pepsin production **(D)** Slowing peristalsis

10. Which stomach secretion activates pepsin and kills bacteria?

(A) Bile **(B)** Hydrochloric acid (HCl) **(C)** Sodium bicarbonate **(D)** Mucus

11. Which respiratory pigment is found in muscle tissue?

(A) Haemoglobin **(B)** Melanin **(C)** Myoglobin **(D)** Chlorophyll

12. Emphysema is characterized by:

(A) Inflammation of airways **(B)** Narrowing of airways **(C)** Destruction of the alveoli in lungs **(D)** Fluid build-up in lungs

13. SA-node initiates heartbeat in;

(A) Right atrium only **(B)** Right atrium and partially left also **(C)** Right and left both **(D)** Left atrium and partially right also

14. Instead of normal "lub-dubb" sound, a "lub-hiss, lub-hiss" sound indicates;

(A) Blocked coronary artery **(B)** Damaged pacemaker **(C)** Defective semilunar valve **(D)** High blood pressure

15. Which of these extends the entire length of a muscle fibre?

(A) Sarcomere **(B)** Myofibril **(C)** Myosin filament **(D)** Actin filament

16. Which part of muscle fibre releases calcium ions which trigger contraction?

(A) Sarcolemma **(B)** Sarcoplasm **(C)** T-tubules **(D)** Sarcoplasmic reticulum

17. In bacterial cells, respiration occurs at:

(A) Mitochondria **(B)** Cell membrane **(C)** Ribosomes **(D)** Endoplasmic reticulum

Q2. Write short answers of the following questions. Any 8 **8X2=16**

1 . Describe one key feature that differentiates Archaea from Bacteria.

2 . Write about the structural components of a bacterial cell wall and their arrangement.

3 . What are mesosomes? What are their functions?

4 . Define sporulation.

5 . List the structures and molecules, which can cross the nuclear envelope.

6 . Describe the role of the Golgi body in forming lysosomes.

7 . The following diagram shows the structure of a mitochondrion. Name structures A to G. (image)

8 . What are the main functions of lysosomes?

9 . Categorize the organelles as (i) single membrane bounded, (ii) double membrane bounded and (iii) lacking any membrane.

10 . Outline the synthesis of peptide linkages.

11 . Differentiate between nucleoside and nucleotide.

12 . What is the function of the bacterial capsule?

Q3. Write short answers of the following questions. Any 8 **8X2=16**

1 . Differentiate between co-enzyme and prosthetic group

2 . How is photosynthesis a redox reaction?

3 . What is the main structural difference between chlorophyll-a and chlorophyll-b?

4 . Can pyruvic acid enter Krebs cycle as such? If not, what changes are made to it before Krebs cycle?

5 . What are the main three pathways for the movement of water between plant cells?

6 . How intercalary meristem is different from apical meristem?

7 . Differentiate between Vernalin and Florigen.

8 . What is the mode of action of saliva in mouth?

9 . Which organ produces bile, and what is its function?

10 . Differentiate between physical and chemical digestion.

11 .

What are the main functions of the large intestine?

12 . What causes jaundice in the digestive system?

Q4. Write short answers of the following questions. Any 6 **6X2=12**

1 . What are nostrils and what do they lead to?

2 . What is myoglobin and where is it found in the body?

3 . What are lower respiratory-tract infections and which diseases do they include?

4 . How does tuberculosis affect lung tissue?

5 . What is meant by Purkinje fibres?

6 . What is the function of the lymphatic system besides blood circulation?

7 . Where are lymph nodes commonly found in the human body?

8 . Name the bones of forelimbs and hindlimbs.

9 . What bones make up each forelimb?

Q5. Write detailed answers of the following questions. Any 6 **6X4=24**

1 . Why do bacteria have ribosomes even though they do not have membrane-bound organelles?

2 . Explain the chemical composition and the functions of plasma membrane.

3 . Differentiate among the three types of co-factors, by giving examples.

4 . What are photosynthetic pigments and what role they play in the absorption and conversion of light energy?

5 . How are the absorption spectra of chlorophyll ‘a’ and ‘b’ different?

6 . Compare and contrast the roles of the small intestine and large intestine in digestion.

7 . Explain how a heartbeat is initiated and controlled.

8 . Justify in what way the blood circulatory system is dependent on the lymphatic system.

9 . Describe enzymatic inhibition, its types and its significance.

10 . Describe how Krebs cycle is the completion of the oxidation of glycolytic products.