Step Academy official

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STUDENT NAME	
PAPER CODE	86411
TIME ALLOWED	150
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CLASS	New 1st Year (FSC/ICS)
SUBJECT	Biology
TOTAL MARKS	100
Paper Type	

Q6. Choose the correct answer. **17X1=17**

1. Compounds eyes and antennae in arthropods are used for:

(A) Reproduction **(B)** Respirration **(C)** Movement **(D)** Sensory functions

2. Tube feet function in:

(A) Excretion only **(B)** Feeding only **(C)** Locomotion and attachment **(D)** Reproduction

3. What are non-enveloped viruses also known as?

(A) Naked viruses **(B)** Protein viruses **(C)** DNA viruses **(D)** Retroviruses

4. What is the function of the receptor-how complex in the nucleus?

(A) Breaking down proteins **(B)** Activating enzymes **(C)** Binding to DNA regulate transcription **(D)** Transporting glucose

5. A benefit of using iPSCs is that they:

(A) Are multipotent **(B)** Avoid ethical concerns **(C)** Cannot divide **(D)** Are found in embryos

6. What does the term "carbohydrate" literally mean?

(A) Complex sugar **(B)** Hydrated carbon **(C)** Organic compound **(D)** Energy source

7. Which of the following is a monosaccharide?

(A) Maltose **(B)** Lactose **(C)** Glucose **(D)** Sucrose

8. What distinguishes chitin from cellulose?

(A) It's made of lipids **(B)** It contains nitrogen-containing groups **(C)** It dissolves in water **(D)** It is not a polymer

9. What are nucleic acids made up of?

(A) Amino acids **(B)** Fatty acids **(C)** Nucleotides **(D)** Monosaccharides

10. In which organelles is DNA found apart from the nucleus?

(A) Lysosomes and ribosomes **(B)** Mitochondria and chloroplasts **(C)** Endoplasmic reticulum and Golgi bodies **(D)** Ribosomes and nucleolus

11. What did Engelmann use in his experiment?

(A) Green algae **(B)** Elodea **(C)** Spirogyra **(D)** Volvox

12. Where does carbon dioxide enter a leaf?

(A) Through phloem **(B)** Through the cuticle **(C)** Through stomata **(D)** Through xylem

13. What carries electrons from PS-II to PS-I?

(A) DNA **(B)** Ribosomes **(C)** Electron transport chain **(D)** ATP synthase

14. What is the fate of G3P in the Calvin cycle?

(A) All are used to regenerate RuBP **(B)** Stored in the thylakoid **(C)** One exits to form glucose: the rest regenerate RuBP **(D)** Used for protein synthesis

15. What is the first compound formed in the Krebs cycle?

(A) Malic acid **(B)** Citric acid **(C)** Succinic acid **(D)** Acetaldehyde

16. What is the first stable intermediate in glycolysis?

(A) Fructose-6-phosphate **(B)** Glucose-6-phosphate **(C)** Glyceraldehyde-3-phosphate **(D)** Dihydroxyacetone phosphate

17. How many ATP molecules are produced in anaerobic respiration of one glucose?

(A) 36 **(B)** 18 **(C)** 6 **(D)** 2

Q7. Write short answers of the following questions. Any 8 **8X2=16**

1 . What is classification in Biology?

2 . Name the three major groups of protists.

3 . What are fungi-like protists?

4 . What type of cells do Bacteria and Archaea have?

5 . Which kingdom under domain Eukarya lacks a cell wall?

6 . Describe the digestive system of cnidarians.

7 . What is the body structure of annelids?

8 . What is the excretory system of annelids?

9 . How are body parts arranged in echinoderms?

10 . Do all chordates retain the post-anal tail throughout life?

11 . How many classes are vertebrates divided into?

12 . Define sporulation.

Q8. Write short answers of the following questions. Any 8 **8X2=16**

1 . What is the endoplasmic recticulum (ER)?

2 . What are the functions of the ER in the cell?

3 . How is light energy converted into chemical energy in chloroplasts?

4 . How many Golgi stacks are typically present in an animal cell?

5 . What is the role of glyoxysomes in plant cells?

6 . What is tonoplast?

7 . Are cilia common in plant cells?

8 . Why is starch suitable for storage in plant cells?

9 .

What are conjugated molecules?

10 . What type of bond connects phosphoric acid to the pentose sugar?

11 . What is NAD and its role?

12 . Which base pairs are found in DNA and how many hydrogen bonds do they form?

Q9. Write short answers of the following questions. Any 6 **6X2=12**

1 . Define feedback inhibition

2 . What is feedback inhibition and what is its importance in cells?

3 . How is photosynthesis a redox reaction?

4 . Differentiate between C-3 and C-4 photosynthesis.

5 . What happens during the carbon fixation phase of the Calvin cycle?

6 . What is glycolysis?

7 . Why is glucose considered to have more stored energy than CO_2 and H_2O?

8 . What is meant by "respiratory fuel"?

9 . How does the electron transport chain contribute to the proton gradient?

Q11. Write detailed answers of the following questions. Any 6 **6X4=24**

1 . Correlate the social and cultural values of a country with the prevalence of AIDS.

2 . Describe the structure, chemical composition and function of chromosome.

3 . Compare mitochondria and chloroplasts as the organelles that are involved in cellular energetics.

4 . What are the advantages and disadvantages of using induced Pluripotent Stem Cells?

5 . How does the three-dimensional structure of a protein relate to its function?

6 . Distinguish the properties and roles of disaccharides.

7 . Categorize inhibitors into competitive and non-competitive inhibitors.

8 . Describe and illustrate how photosynthetic pigments are organized in thylakoid membrane?

9 . Illustrate the cyclic photophosphorylation.

10 . Why does cellular respiration release energy more efficiently than fermentation?