

# PLUS ONE MODEL EXAMINATION

## BIOLOGY

Time : 1 hour

Total Score: 60

### General Instructions to Candidates:

- The first 5 minutes is cool-off time.
- You may use the time to read the questions and plan your answers.
- Answer only on the basis of instructions and questions given.
- Consider score and time while answering.

### BOTANY

Answer all 6 questions each carries 1 score

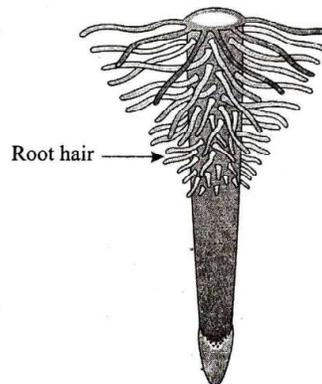
(6 x 1 = 6)

1. Name the enzyme present in plants which shows carboxylation and oxygenation activity. [1]
2. The stage between the two meiotic division is called [1]
  - a) Interphase
  - b) Quiescent stage
  - c) Interkinesis
  - d) Cytokinesis
3. All the tissues on the inner side of endodermis together constitute \_\_\_\_\_ [1]
4. Who among the following scientists is related with the identification of cytokinins? [1]
  - a. E. Kurosawa
  - b. F. Skoog
  - c. C. Darwin
  - d. F. W. Went
5. Name the plant hormone which helps in the ripening of fruits. [1]
6. Fill in the blank :  
The site of dark reaction in photosynthesis is \_\_\_\_\_ part of chloroplast [1]

Answer all 6 questions each carries 2 score

(6 x 2 = 12)

7. Rearrange the following regions of roots, as seen in the roots in vertical section.
  - i) Region of elongation.
  - ii) Root cap.
  - iii) Region of meristematic activity.
  - iv) Region of maturation.



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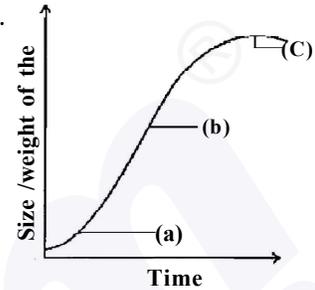
8. Write any 3 external and internal features that affect photosynthesis. [2]

9. Light reaction is a process involved in photosynthesis. [2]

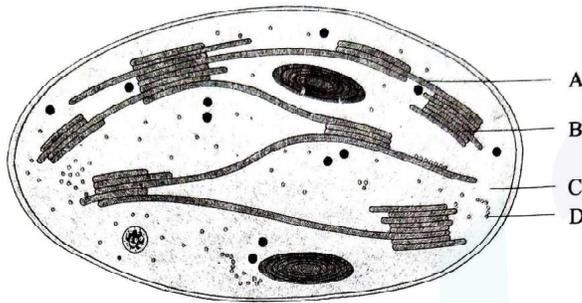
- a. What is light reaction?
- b. Where does it take place?

10. Observe the given graph. The graph represents the phases of growth. [2]

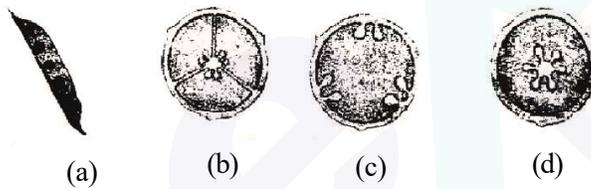
- a) Name the growth curve.
- b) Name the different phases of growth represented as (a), (b) and (c).



11. Label the parts A, B, C, D in the given diagram. [2]



12. Observe the following diagram a, b, c, d and identify the placentation. [2]



Answer all 4 questions each carries 3 score

(4 x 3 = 12)

13. a) Which is the special leaf anatomy seen in  $C_4$  plants?

b) Productivity and yield are better in  $C_4$  plants than  $C_3$  plants. Why?

14. Glycolysis is the partial oxidation of glucose to produce 2 molecules of pyruvic acid

a) Where does glycolysis occur?

b) Steps of glycolysis are given below. Write the name of compounds marked as (a), (b), (c) and (d) [3]

15. Photophosphorylation takes place during photosynthesis.

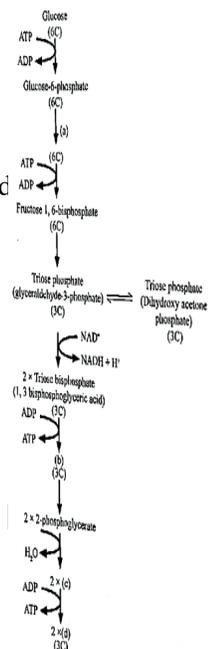
a) Name the two types of photophosphorylations.

b) Mention the differences between them.

16. 'Photorespiration is a curse to plants.'

a. Evaluate this statement.

b. Find the reason for this event to takeplace.



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**ZOOLOGY**

**Answer all 4 questions each carries 1 score (4 x 1 = 4)**

1. A common passage for food and air in the human body is ----- [1]
2. Name the most abundant protein in the animal world. [1]
3. Which among the following is secreted by pineal gland? [1]
  - a) Prolactin                      b) Melatonin
  - c) Gastrin                        d) Secretin
4. Note the relationship in the first pair and then complete the second pair. [1]
 

Osteichthyes : Cycloid scales

Chondrichthyes : .....

**Answer all 5 questions each carries 2 score (5 x 2 = 10)**

5. Name the following: [2]
  - a) Plasma without clotting factor.
  - b) Blood group known as ‘Universal receptors’.
  - c) Protective double walled membranous bag covering human heart.
  - d) Pacemaker of human heart.
6. Expand the following: [2]
  - a) ACTH    b) FSH    c) TSH    d) ADH
7. Details regarding the disorders of human muscular and skeletal system is given below. [2]
 

Name the disorder.

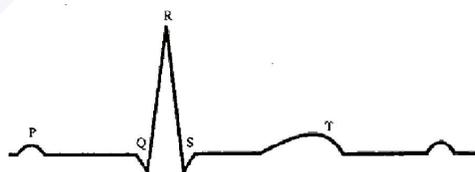
  - a) Inflammation of joints due to accumulation of uric acid crystals.
  - b) Inflammation of joints.
  - c) Rapid spasms in muscle due to low Ca\*\* in body fluids.
  - d) Age related disorder characterised by decreased bone mass and increased chances of fractures.
8. Arrange the following animals under suitable headings in the table given below based on their mode of nitrogenous waste excretion. [2]

Bony fishes, Birds, Terrestrial Amphibians, Mammals		
Ammonotelic	Ureotelic	Uricotelic

9. Name the following : [2]
  - a) Plasma without clotting factor.
  - b) Blood group known as ‘Universal receptors’.

**Answer all 4 questions each carries 3 score (4 x 3 = 12)**

10. Diagrammatic presentation of a standard ECG is given below: [3]



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- a) Expand ECG.
- b) What does QRS complex wave denotes ?
- c) Mention the clinical significance of ECG.

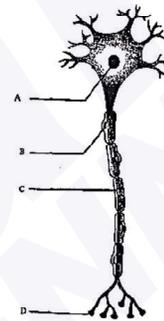
[3]

11. Diagram of an invertebrate organism is given below:



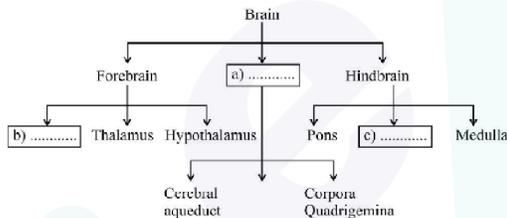
- a) Identify the organism. [1]
- b) Name the phylum to which it belongs. [1]
- c) Write any two characteristics of the phylum. [1]

- 12. a) Structure of a neuron is given below. Label the parts marked A, B, C and D. Label the parts marked A, B, C and D.
- b) What are the types of nerve cells based on the number of axons and dendrites?



13. Complete the illustration appropriately.

[3]



Name 3 layers of Cranial meninges that protects brain.

Outer layer (d) \_\_\_\_\_

Middle layer (e) \_\_\_\_\_

Inner layer (f) \_\_\_\_\_

**Answer the questions**

(4 x 1 = 4)

14. a) Give reason for the following :

[4]

- i) Pituitary dwarfism
- ii) Diabetes mellitus
- iii) Acromegaly
- iv) Diabetes insipidus

b) Name the hormones known as “Emergency Hormones” and the gland secreting it.



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