પુ•ના International School

Shree Swaminarayan Gurukul, Zundal

Annual Examination [2020 – 21]					
Student Name				**Grade**	**XI**
Date	**22/02/2021**			**Subject**	**Biology**
Set - A		**Time**	**3Hr**	**Total Marks**	**70**

Annual Examination 2020 - 2021

General Instructions:

i. All questions are compulsory.
ii. The question paper has four sections: Section A, Section B, Section C and Section D. There are 33 questions in the question paper.
iii. Section-A has 14 questions of 1 mark each and 02 case-based questions. Section-B has 9 questions of 2 marks each. Section-C has 5 questions of 3 marks each and Section-D has 3 questions of 5 marks each.
iv. There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
v. Wherever necessary, neat and properly labeled diagrams should be drawn.

Section A

1. The concept of new systematics was developed by which scientist?
2. Name the different cell junctions found in tissues.
3. Why Cyeas is called a living fossil?
4. Define sliding filament theory of muscle contraction.
5. Define epiphyllous arrangement of stamens.
6. What is the function of columnar epithelium?
7. During which phase of mitotic cell division, chromosomes get separated?
8. Define cellular respiration.
9. Mention the difference between hypothyroidism and hyperthyroidism.
10. Sort the following into actively or passively transported substances during reabsorption ofGFR.

    Glucose, amino acids, nitrogenous wastes, Na+, water
11. Assertion: Archaebacteria are special since they live in some of the harshest habitats.
    Reason: Archaebacteria having a different cell wall structure and this feature is

responsible for their survival in extreme conditions.

a. Assertion and reason both are correct statements and reason is correct explanation for assertion.
b. Assertion and reason both are correct statements but reason is not correct explanation for assertion.
c. Assertion is correct statement but reason is wrong statement.
d. Assertion is wrong statement but reason is correct statement.

OR

Assertion: Albugo parasitizes several crucifers.
Reason: The disease infects leaves and stems.

a. Assertion and reason both are correct statements and reason is correct explanation for assertion.
b. Assertion and reason both are correct statements but reason is not correct explanation for assertion.
c. Assertion is correct statement but reason is wrong statement.
d. Assertion is wrong statement but reason is correct statement.

12. Assertion: If the tissue is fully burnt, all the carbon compounds are oxidised to gaseous form like C02, water vapour and are removed and remaining is called ash.

Reason: Analysis of compounds present in ash gives an idea of the kind of organic and inorganic constituents present in living tissues.

a. Assertion and reason both are correct statements and reason is correct explanation for assertion.
b. Assertion and reason both are correct statements but reason is not correct explanation for assertion.
c. Assertion is correct statement but reason is wrong statement.
d. Assertion is wrong statement but reason is correct statement.

13. Assertion: Lipids present in the outer and inner side of the bilayer membrane are mostly the same.

Reason: Oligosaccharides are attached to the external surface as well as the inner surface of a biomembrane.

a. Assertion and reason both are correct statements and reason is correct explanation

for assertion.

b. Assertion and reason both are correct statements but reason is not correct explanation for assertion.

c. Assertion is correct statement but reason is wrong statement.

d. Assertion is wrong statement but reason is correct statement.

14. Assertion: The movement of air into and out of the lungs is carried out by creating a pressure gradient between the lungs and the atmosphere.

Reason: The diaphragm and a specialised set of muscles- external and internal intercostals between the ribs, help in generation of such gradients.

a. Assertion and reason both are correct statements and reason is correct explanation for assertion.

b. Assertion and reason both are correct statements but reason is not correct explanation for assertion.

c. Assertion is correct statement but reason is wrong statement.

d. Assertion is wrong statement but reason is correct statement.

15. Read the following and answer any four questions:

The prokaryotic cells are generally smaller and multiply more rapidly than the eukaryotic cells. They may vary greatly in shape and size. The organization of the prokaryotic cell is fundamentally similar even though prokaryotes exhibit a wide variety of shapes and functions. Most prokaryotic cells, particularly bacterial cells, have a chemically complex cell envelope.

i Which is the outermost layer of the cell envelope in prokaryotes?

a. Glycocalyx

b. Cell wall

c. Plasma membrane

d. Mesosome

ii, Bacteria can be classified into groups on the basis of the differences in the cell envelopes and the manner in which they respond to the staining procedure developed by Gram.

a. Two

b. Three

c. Five

d. Four

iii. A special membranous structure called is formed by the extensions of the plasma membrane into the prokaryotic cell.
   a. Golgibody
   b. Ribosome
   c. Mesosome
   d. Inclusion body

iv. The are small bristle-like fibres sprouting out of the cell. a. Pili
   b. Flagellum
   c. Pseudopodia
   d. Fimbriae

v. Assertion: Glycocalyxin the cell envelope ofprokaryotes differs in composition and thickness among different bacteria.
   Reason: It could be a loose sheath called the capsule.
   a. Both assertion and reason are true, and reason is the correct explanation of the assertion.
   b. Both assertion and reason are true, and reason is not the correct explanation of the assertion.
   c. Assertion is true but reason is false.
   d. Both assertion and reason are false.

16. Read the following and answer any four questions:
In human beings, the lungs are situated in the thoracic chamber which is formed dorsally by the vertebral column, ventrally by the sternum, laterally by the ribs, and on the lower side by the dome-shaped diaphragm. The anatomical setup of the lungs in the thorax is such that any change in the volume of the thoracic cavity will be reflected in the lung (pulmonary) cavity. Such an arrangement is essential for breathing. Breathing involves two stages - inspiration and expiration. During inspiration, the atmospheric air is drawn in and during expiration, the alveolar air is released out.

i On average, a healthy human breathes times/minute.
   a. 12-16
   b. 18-20
   c. 70 -72
   d. 80-84

ii, Air is sucked into the lungs by _

a. Ribs lift up
b. Diaphragm flattens
c. Ribs flatten
d. Both ribs lift up and diaphragm flattens

iii What term is used for the volume of air inspired or expired during normal respiration?

a. Tidal volume
b. Inspiratory Reserve Volurne
c. Residual Volume
d. Vital Capacity

iv. The residual volume of air is _

a. 6000 to 8000 ml,
b. 2500 mL to 3000 mL
c. 1000 mL to 1100 mL
d. 1100 mL to 1200 mL

v. The following statements are drawn as conclusions for the image shown .

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1. The movement of air into and out of the lungs is carried out by creating a pressure gradient.

II. Expiration can occur if the pressure within the lungs (intra-pulmonary pressure) is less than the atmospheric pressure.

III. The diaphragm and a specialised set of muscles help in generation of pressure gradients.

IV. Expiration is initiated by the contraction of diaphragm which increases the volume of thoracic chamber in the antero-posterior axis.

Choose from below the correct alternative.

a. a. Only I is true

b. b. I and IV are true

c. c. III and II are true

d. d. I and In are true

Section B

17. When does anaerobic respiration occur in man and yeast?
18. An owner of an apple orchard wants to get better yield and wants to wait for good market conditions to sell his apples. Which PGR should he use to achieve his goals?
19. Differentiate between Receptor and Motor endplate.
20. On what factor the respiratory quotient depends?

OR

i What is the end product of glycolysis and where does this process occur?

ii List the conditions under which fermentation occurs in plant cells?

21. In a way green plants and cyanobacteria have synthesized all the food on the earth. Comment.
22. What are the main steps during Calvin cycle?

OR

Why is the colour of a leaf kept in the dark frequently yellow, or pale green? Which pigmenr do you think is more stable?

23. Flower is a reproductive unit of a plant.

i It is morphologically called shoot. Explain.

ii. On which part, floral whorls are arranged?

24. A patient complains of constant thirst, excessive passing of urine, and low blood pressure. When the doctor checked the patients' blood glucose and blood insulin level, the level was normal or slightly low. The doctor diagnosed the condition as diabetes insipidus. But he decided to measure one more hormone in patients' blood. Which hormone does the doctor intend to measure?
25. Mention any four features present in anirnals belonging to phylum Echinodermata.

Section C

26. Give the schematic representation of an overall view of Krebs' cycle.
27. What is morphology?

28. How are photosynthesis and respiration related to each other?
29. Write a note on mitosis.
30. Write short notes on:
    (a) Kingdom plantae (b) Kingdom animalia (c) Bacteria (d) Lichens

OR

What is the need of a classification system in biology? How did different classification systems develop over a period of time?

Section D

31. Distinguish between Annelida and Arthropoda.

OR

Describe key features of class Mammalia. Discuss how these features enable them to be at the top of the evolutionary pyramid.

32. What are gums made of? Is Fevicol different?

OR

Explain the composition of triglyceride.

33. Thrombocytes are essential for coagulation of blood. Comment.

OR

With the help of suitable diagram describe the structure of the human heart.