9th Class 2019

Biology	Group-I	Paper-I
Time: 15 Minutes	(Objective Type)	Marks: 12

Note: Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1- **Five Kingdom classification system was introduced by:**

(a) Schwartz (b) Margulis
(c) Aristotle (d) Robert Whittaker ✓

2- **In children, deficiency of vitamin D causes:**

(a) Osteomalacia (b) Scurvy
(c) Night blindness (d) Rickets ✓

3- **During this phase, chromosomes are arranged at equator of cell:**

(a) Prophase (b) Metaphase ✓
(c) Telophase (d) Anaphase

4- **The Italian word "mala" means:**

(a) Bad ✓ (b) Good
(c) Air (d) Water

5- **Lipase enzyme acts on molecule:**

(a) Lipids ✓ (b) Starch
(c) Cellulose (d) Proteins

6- **An artery that supplies blood to liver:**

(a) Renal artery (b) Femoral artery
(c) Hepatic artery ✓ (d) Coronary artery

7- **The largest taxon in biological classification is:**

(a) Phylum (b) Class
(c) Kingdom ✓ (d) Genus

After birth, two types of antibodies *i.e.*, anti-A & anti-B antibodies appear in the blood serum of individuals. These antibodies are present according to the absence of corresponding antigen. In persons with blood group A, antigen A is present and antigen B is absent. So their blood will contain anti-B antibodies. In persons with blood group B, antigen B is present and antigen A is absent. So their blood will contain anti-A antibody. In persons with blood group AB, antigens A & B are present *i.e.*, neither is absent. So their blood serum will contain no antibody. In persons with blood group O, neither antigen A nor antigen B is present *i.e.*, both are absent. So their blood serum will contain both antibodies *i.e.*, anti-A & anti-B.

8- **Pores through which cytoplasm of adjacent cells is connected:**

(a) Stomata (b) Plasmodesmata ✓
(c) Lenticels (d) Cuticle

9- **Microtubules are made of:**

(a) Tubulin protein ✓ (b) RNA
(c) DNA (d) Actin protein

10- **In most plants, food is transported in the form of:**

(a) Glucose (b) Sucrose ✓
(c) Starch (d) Lactose

11- **An example of multi-cellular organism is:**

(a) Bacteria (b) Frog ✓
(c) Amoeba (d) Euglena

12- **Main photosynthetic pigment is:**

(a) Chlorophyll 'b' (b) Chlorophyll 'a' ✓
(c) Carotenoids (d) Xanthophylls

9th Class 2019

Biology	Group-I	Paper-I
Time: 1.45 Hours	(Subjective Type)	Marks: 48

(Part-I)

Q.2. Write short answers to any FIVE (5) questions: (10)

(i) **Define physiology and anatomy.**

Ans **Physiology:**

This branch deals with the study of the functions of different parts of living organisms.

Anatomy:

The study of internal structures is called anatomy.

(ii) **Define population and community.**

Ans **Population:**

A population is defined as "A group of organisms of the same species located at the same place, in the same time."

For example, human population in Pakistan in 2010 comprises of 173.5 million individuals. (According to the Ministry of Population Welfare. Government of Pakistan.)

Community:

"Community is an assemblage of different populations, interacting with one another within the same environment."

A forest may be considered as a community. It includes different plant, microorganisms, fungi and animal species.

(iii) **What is the difference between ratio and proportion?**

Ans **Difference between Ratio and Proportion**

1. It includes prokaryotic organisms *i.e.*, they are made of prokaryotic cells form chains, clusters, or colonies of cells.
They are unicellular, although some types.

2. **Describe briefly sclerenchyma tissues.**

(vii) **Sclerenchyma Tissue:**

Ans They are composed of cells with rigid secondary cell walls. Their cell walls are hardened with lignin, which is the main chemical component of wood. Mature sclerenchyma cells cannot elongate and most of them are dead.

(viii) **Define hypotonic and hypertonic solutions.**

Ans A hypotonic solution has relatively less solute. While a hypertonic solution has relatively more solute.

Q.3. Write short answers to any FIVE (5) questions: (10)

(i) **Differentiate between chromatin and chromosomes.**

Ans

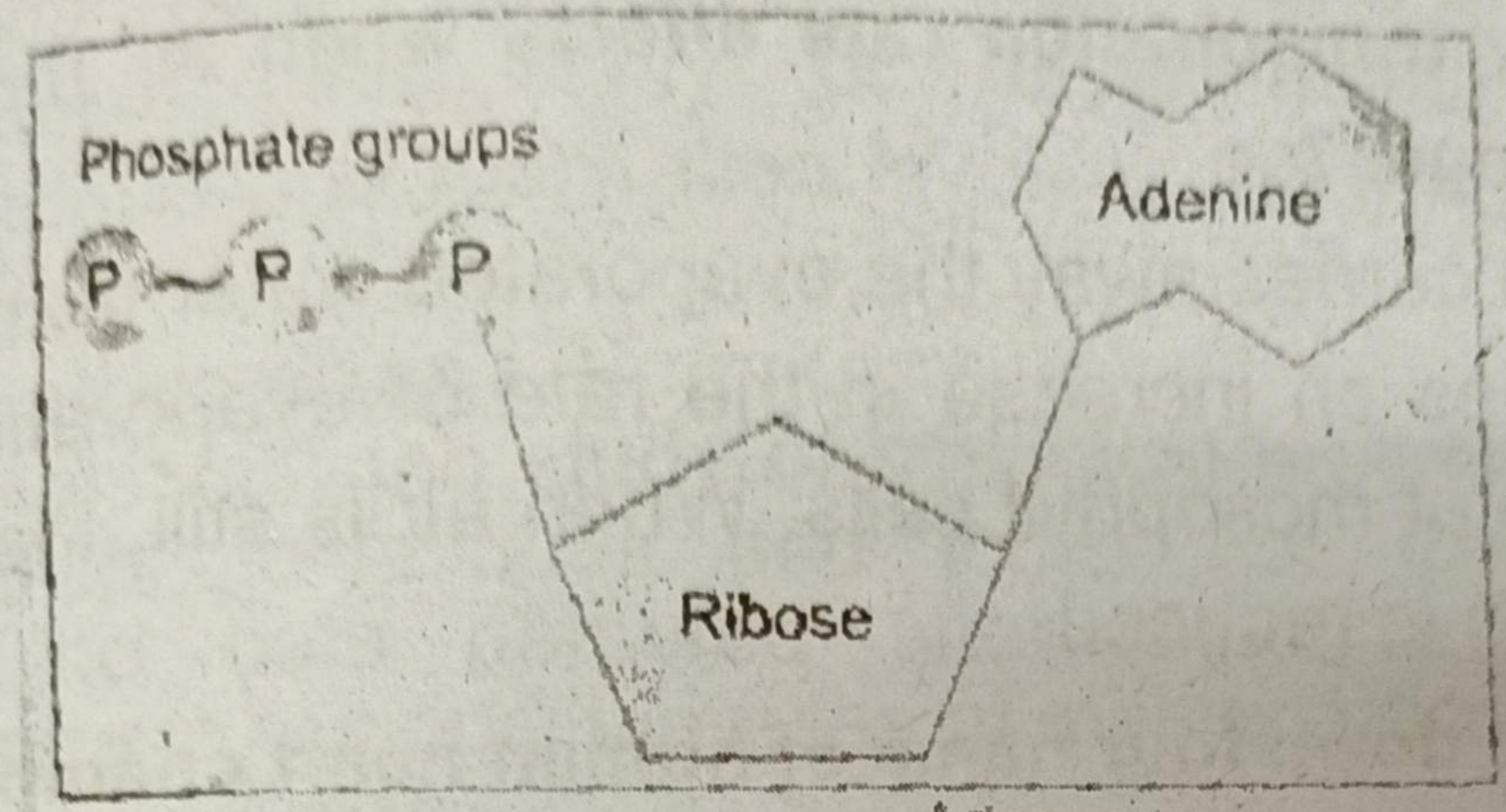
Chromosomes	Chromatin
Chromosomes are composed of DNA and protein. They are visible only during cell division.	During interphase of cell, chromosomes are in the form of fine thread-like structures known as chromatin.

(ii) **How cytokinesis takes place in plants' cells?**

Ans Cytokinesis in plant cells occurs differently. Vesicles derived from the Golgi apparatus move to the middle of cell and fuse to form a membrane-bounded disc called cell plate or phragmoplast. The plate grows outward and more vesicles fuse with it. Finally, membranes of cell plate fuse with plasma membrane and its contents join the

(viii) **Sketch molecular structure of adenosine triphosphate.**

Ans



Q.4. Write short answers to any FIVE (5) questions: (10)

(i) **Define scurvy. Write its two symptoms.**

Ans The disease known as scurvy results from lack of vitamin C. In this condition, the synthesized collagen is unstable. Symptoms of scurvy include muscle and joint pain, swollen and bleeding gums, slow wounds healing, and dry skin.

(ii) **How does iodine function in our body?**

Ans Iodine is essential for normal thyroid function.

(iii) **What is the function of pepsin in stomach?**

Ans Pepsin partially digests the protein portion of food (bulk of mutton) into polypeptides and shorter peptide chains.

(iv) **Write down four causes of ulcer.**

Ans The causes of ulcer include excess acid, infection, long-term use of anti-inflammatory medicines (including

aspirin), smoking, drinking coffee, colas, and eating spicy foods.

(v) How transpiration rate affects when air movement changes?

Ans Wind carries away the evaporated water from leaves and it carries an increase in the rate of evaporation from the surface of mesophyll cells. When air is still, the rate of transpiration is reduced.

(vi) Write down four name of human heart chambers.

Ans The names of human heart chambers are as follows:

1. Right atrium
2. Left atrium
3. Right ventricle
4. Left ventricle

(vii) How pus is produced?

Ans White blood cells die in the process of killing the germs. These dead cells accumulate and make the white substance called pus, seen at infection sites.

(viii) Write down two symptoms of dengue fever.

Ans In dengue fever, there is a sharp decrease in the number of platelets in blood. Because of this, patients bleed from the nose, gums and under the skin.

(Part-II)

Note: Attempt any TWO (2) questions.

Q.5.(a) Explain the relationship of biology to any other four sciences. (4)

Ans

Relationship of Biology to Other Sciences:

The interrelationship among different branches of science cannot be denied. Biology includes information on various aspects of living things but these information relate to the other branches of science as well. Each branch of science has relationship with all other branches. For example, when studying the process of movement in

Ans Photosynthesis:

Photosynthesis is the synthesis of glucose from carbon dioxide and water in the presence of sunlight and chlorophyll. The oxygen is released as a by-product in this process. The general equation for photosynthesis is:

$$6CO_2+12H_2O+\text{Light energy} \xrightarrow{\text{Chlorophyll}} C_6H_{12}O_6+6O_2+6H_2O$$

Characteristics	Photosynthesis	Respiration
Metabolism	Anabolism	Catabolism
Energy investment / production:	Investment of light energy to store it in the form of bond energy.	Bond energy transformed into chemical energy of ATP.
Organisms capable of:	Some bacteria, all algae all plants.	All organisms.
Site of occurrence:	Chloroplasts.	In cytoplasm and mitochondria.
Time of occurrence:	In daytime only, in the presence of light.	All the time.

Q.7.(a) Describe minerals deficiency diseases. (4)

Ans Mineral Deficiency Diseases:

Diseases resulting from the deficiency of a mineral are relatively rare among humans. Some examples are given below:

1- **Goiter** is a condition caused by an insufficient amount of iodine in diet. Iodine is used by thyroid gland to produce hormones that control the body's normal functioning and growth. If sufficient iodine is not available in a person's diet, thyroid gland becomes enlarged and it results in swelling in neck. This condition is known as goitre.

2- **Anaemia** is the most common of all mineral deficiency diseases. The term anaemia literally means "a lack of blood." It is caused when the number of red blood cells is reduced than the

normal. Haemoglobin molecule contains a single atom of iron at its centre. If body fails to receive sufficient amounts of iron, adequate number of haemoglobin molecules are not formed. In this case, there are not enough functioning of red blood cells. The patient is weak and there is shortage of oxygen supply to body's cells.

(b) What do you mean by blood groups? How do we classify blood groups in terms of ABO and Rh blood group systems? (5)

Ans Blood group systems:

Blood group systems are a classification of blood based on the presence or absence of antigens on the surface of red blood cells. An **antigen** is a molecule that can stimulate an immune response (antibody production etc.).

ABO Blood Group System:

It is the most important blood group system in humans. It was discovered by the Austrian scientist Karl Landsteiner, who found four different blood groups (blood types) in 1900. He was awarded the Nobel Prize in Medicine for his work.

In this system, there are four different blood groups which are distinct from each other on the basis of specific antigens (antigen A and B) present on the surface of RBCs. A person having antigen A has blood group A, a person having antigen B has blood group B, a person having both antigens has blood group AB, and a person having none of the A and B antigens has blood group O.

After birth, two types of antibodies *i.e.*, anti-A & anti-B antibodies appear in the blood serum of individuals. These antibodies are present according to the absence of corresponding antigen. In persons with blood group A, antigen A is present and antigen B is absent. So their blood will contain anti-B antibodies. In persons with blood

group B, antigen B is present and antigen A is absent. So their blood will contain anti-A antibody. In persons with blood group AB, antigens A & B are present *i.e.*, neither is absent. So their blood serum will contain no antibody. In persons with blood group O, neither antigen A nor antigen B is present *i.e.*, both are absent. So their blood serum will contain both antibodies *i.e.*, anti-A & anti-B.

Rh blood group system:

In 1930's, Karl Landsteiner discovered the Rh-blood system. In this system, there are two blood groups *i.e.*, Rh-positive and Rh-negative. These blood groups are distinct from each other on the basis of antigens called Rh factors (first discovered in Rhesus monkey), present on the surface of RBCs. A person having Rh factors has blood group Rh-positive while a person not having Rh factors has blood group Rh-negative. Unlike the naturally occurring anti-A & anti-B antibodies of the ABO-system, an Rh-negative person does not produce anti-Rh antibodies unless Rh-factor enters in his / her blood.