

10th Class 2016

Biology	Group-II	Paper-II
Time: 15 Minutes	(Objective Type)	Max. 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- Stomata are frequently present on:

- (a) Upper side of leaf
- (b) Lower side of leaf ✓
- (c) Both sides of leaf
- (d) Stem

2- As per normal chemical composition, the amount of water in the urine is:

- (a) 60%
- (b) 70%
- (c) 80%
- (d) 95% ✓

3- Some bones prepare:

- (a) Mucous
- (b) Blood cells ✓
- (c) Oxygen
- (d) Hormones

4- In every 100 ml of human blood, concentration of glucose is maintained as:

- (a) 180-200 mg
- (b) 150-180 mg
- (c) 100-150 mg
- (d) 80-120 mg ✓

5- The part of the brain responsible for muscle movement, interpretation of the senses and the memory is:

- (a) Cerebrum
- (b) Pons
- (c) Medulla oblongata
- (d) Cerebellum ✓

- 6- Is not a part of carpel:
(a) Ovary (b) Anther ✓
(c) Stigma (d) Style
- 7- Ovary is ripened into:
(a) Seed (b) Flower
(c) Fruit ✓ (d) Sweetness
- 8- Cytosine always pairs with:
(a) Guanine ✓ (b) Thiamine
(c) Adenine (d) Hydrogen
- 9- Alternate form of gene is called:
(a) D.N.A. (b) Gamete
(c) Chromosome (d) Allele ✓
- 10- Naturally found in graphite and diamond:
(a) Nitrogen (b) Carbon ✓
(c) Oxygen (d) Hydrogen
- 11- Alcoholic fermentation is processed by:
(a) Virus (b) Bacteria
(c) Fungi ✓ (d) Algae
- 12- Is prepared from opium:
(a) Vaccine (b) Aspirin
(c) Morphine ✓ (d) Paracetamol

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Biology	Group-II	Paper-II
Time: 2.45 Hours	(Subjective Type)	Max. Marks: 63

Part-I

2. Write short answers to any Six (6) questions: 12

(i) Define nasal cavity.

Ans Nasal cavity is the hollow space in the nose; opens to the outside through nostrils and divided into two portions by a wall.

(ii) Define vocal cords.

Ans Vocal cords are two pairs of fibrous bands in the larynx that vibrate when the air passes through them and produce sounds.

(iii) Why does blood become thick due to smoking?

Ans The carbon monoxide present in tobacco smoke lessens the oxygen-carrying capacity of haemoglobin. Many other chemicals in smoke increase the production of blood platelets. When platelets are more than the normal numbers, they make the blood thick and it can lead to arteriosclerosis.

(iv) Define ligaments.

Ans Ligaments are strong but flexible connective tissues that join one bone to bone at the joints.

(v) What are biceps and triceps?

Ans Bicep is a flexor muscle on the front of the upper arm bone, while tricep is an extensor muscle on the back of the upper arm bone.

(vi) Differentiate between flexor and extensor muscle.

Ans Flexor is that muscle which bends a joint, while extensor is a muscle that extends a joint.

(vii) Define predation with an example.

Ans It is an interaction between two animals of different species or between a plant and an animal. In predation, one organism (the predator) attacks, kills and feeds on other organism (the prey) e.g., frog preys upon mosquitoes and fox preys upon rabbit.

(viii) What are the effects of global warming?

Ans Due to global warming, polar ice-caps and glaciers are melting faster than the time taken for new ice layers to form. Sea water is also expanding causing sea levels to rise. Due to melting glaciers, rivers overflow and cause floods.

(ix) What is meant by osmosis?

Ans Osmosis is the spontaneous net movement of solvent molecules through a semi-permeable membrane into a region of higher solute concentration, in the direction that tends to equalize the solute concentrations on the two sides.

3. Write short answers any Five (5) questions: 10

(i) What are hydrophytes? Give an example.

Ans Plants that are well adapted to survive in or on the waterlogged areas are called hydrophytes, e.g., Lotus, water lily, etc.

(ii) What is hilus?

Ans Hilus is a depression near the centre of the concave area of the kidney, the area through which the ureter, blood and lymphatic vessels and nerves enter / leave the kidney.

(iii) Define dialysis. Name its two types.

Ans The cleaning of blood from the body by artificial ways is known as dialysis. The two main types of dialysis are hemodialysis and peritoneal dialysis.

- (iv) What is reproduction? Name its two basic types.

Ans Reproduction is defined as the production of individuals of the same species, i.e., the next generation of species. The two basic types of reproduction are; asexual reproduction and sexual reproduction.

- (v) What is difference between self-pollination and cross pollination?

Ans The transfer of pollen grains from the anther to the stigma of the same flower or other flower of the same plant is called self-pollination while cross pollination is the transfer of pollen grains from the flower on one plant to the flower on other plant of the same species.

- (vi) What is vector in genetic engineering?

Ans In genetic engineering, vector is the DNA or bacteriophage, etc. that transfers the isolated gene of interest to the host cell.

- (vii) What is meant by single cell protein?

Ans The protein content extracted from pure or mixed cultures of algae, yeasts, fungi or bacteria, the micro-organisms grown in fermenters where they produce a high yield of protein, is called single cell protein.

- (viii) What is meant by gene therapy?

Ans Gene therapy is a form of therapy that involves inserting one or more corrective genes that have been designed in the laboratory, into the genetic material of a patient's cells to cure a genetic disease.

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

- (i) What is meant by saltatory impulses?

Ans Impulses 'jump' over the areas of myelin going from node to node are called saltatory impulses.

(ii) **What are meninges? Write down their function.**

Ans Three layers around the brain and the spinal cord are called meninges. These layers protect the brain and the spinal cord and provide them nutrient and oxygen through their capillaries.

(iii) **Differentiate between transcription and translation.**

Ans The specific sequence of DNA nucleotides is copied in the form of messenger RNA (mRNA) nucleotides. This process is called transcription. The mRNA carries the sequence of its nucleotides to ribosome. The ribosome reads this sequence and joins specific amino acids, according to it, to form protein. This step is known as translation.

(iv) **Differentiate between gene and allele.**

Ans Gene is a unit of inheritance; consists of the length of DNA that contains specific instructions for the synthesis of a protein molecule. While, allele is an alternative form of gene.

(v) **Differentiate between breeds and varieties.**

Ans In artificial selection, the bred animals are known as breeds, while bred plants are known as varieties.

(vi) **What is meant by analgesics? Give an example.**

Ans Analgesics are those medicines which reduce pain, e.g., aspirin, paracetamol, etc.

(vii) **Define hallucinogens.**

Ans Hallucinogens are the drugs that cause changes in perception, thought, emotion and consciousness.

(viii) **Differentiate between bactericidal and bacteriostatic antibiotics.**

Ans Bactericidal are the antibiotics which work by killing bacteria, while the antibiotics that work by stopping bacteria multiplying are called bacteriostatic antibiotics.

Part-II

NOTE: Attempt any Three (3) questions.

Q.5.(a) Write a complete note on Pneumonia. (4)

Ans For Answer see Paper 2015, (Group-II) Q.5.(a).

(b) How plants remove extra carbon dioxide and oxygen and water outside? (3)

Ans For Answer see Paper 2015, (Group-I), Q.5.(b).

Q.6.(a) Explain structure and function of pituitary gland. (4)

Ans Pituitary Gland:

Pituitary gland is a pea-shaped gland attached to the hypothalamus of brain. Many hormones (trophic hormones) of pituitary gland influence the secretions of other endocrine glands. However, some hormones of this gland act directly on various tissues of body.

Structure and Functions of Pituitary gland:

There are two lobes of pituitary gland, i.e., anterior lobe and posterior lobe.

(a) Anterior Lobe:

It produces many hormones. One of its important hormones is somatotrophin. It promotes the growth of body. If the production of this hormone is diminished during growing age, the rate of growth decreases. This condition is called dwarfism. If this hormone is excessively produced during growing age, it leads to gigantism. If somatotrophin is excessively produced after growing age, internal organs and body extremities alone grow large. This condition is known as acromegaly. Such persons will have large hands, feet and jawbones. Another important hormone secreted by the anterior lobe of pituitary gland is thyroid-stimulating hormone. It stimulates thyroid gland to secrete its hormones. The remaining hormones of anterior lobe influence reproductive organs and also control adrenal glands.

Q.7.(a) What is AIDS? Give its causes.

(4)

Ans The most serious and challenging health problem faced by the world today is AIDS. It is a sexually transmitted disease. AIDS stands for Acquired Immune Deficiency Syndrome. It is caused by human immunodeficiency virus (HIV). The virus destroys white blood cells, which results in loss of resistance against infections. It is a fatal disease. It spreads through transfer of body fluids such as blood and semen. Thus the main causes are unprotected sexual activities, use of infected needles or transfusion of infected blood.

(b) Explain binary fission with the help of amoeba. (3)

Ans Binary Fission:

Binary fission means "division into two". It is the simplest and most common method of asexual reproduction.

Binary Fission in Amoeba:

During binary fission in amoeba, i.e., unicellular eukaryote, the nucleus of parent organism divides into two. It is followed by the division of cytoplasm. So two daughter cells of almost equal size are formed. Daughter cells grow in size and then divide again.

Q.8.(a) Write a note on Mendel's Law of Segregation. (4)

Ans For Answer see Paper 2015, (Group-I), Q.8.(a).

(b) Write a note on nitrogen fixation. (3)

Ans For Answer see Paper 2015, (Group-II), Q.8.(b).

Q.9.(a) Write a note on batch fermentation and continuous fermentation in fermenter. (4)

Ans Fermenter is a device which provides an environment to the microorganisms in a biomass to react with a substrate to form a product.

Types of fermentation:

There are two types of fermentation occurring in a fermenter:

(i) Batch fermentation:

In this type of fermentation, the fermenter is filled with raw material and sterilizes it with steam. Suitable temperature and pH are adjusted for fermentation. A pure culture of microorganisms is also added into the fermenter. Fermentation is started and the material of the fermenter is taken out after a suitable time. In this way, this process is repeated after intervals within the fermenter.

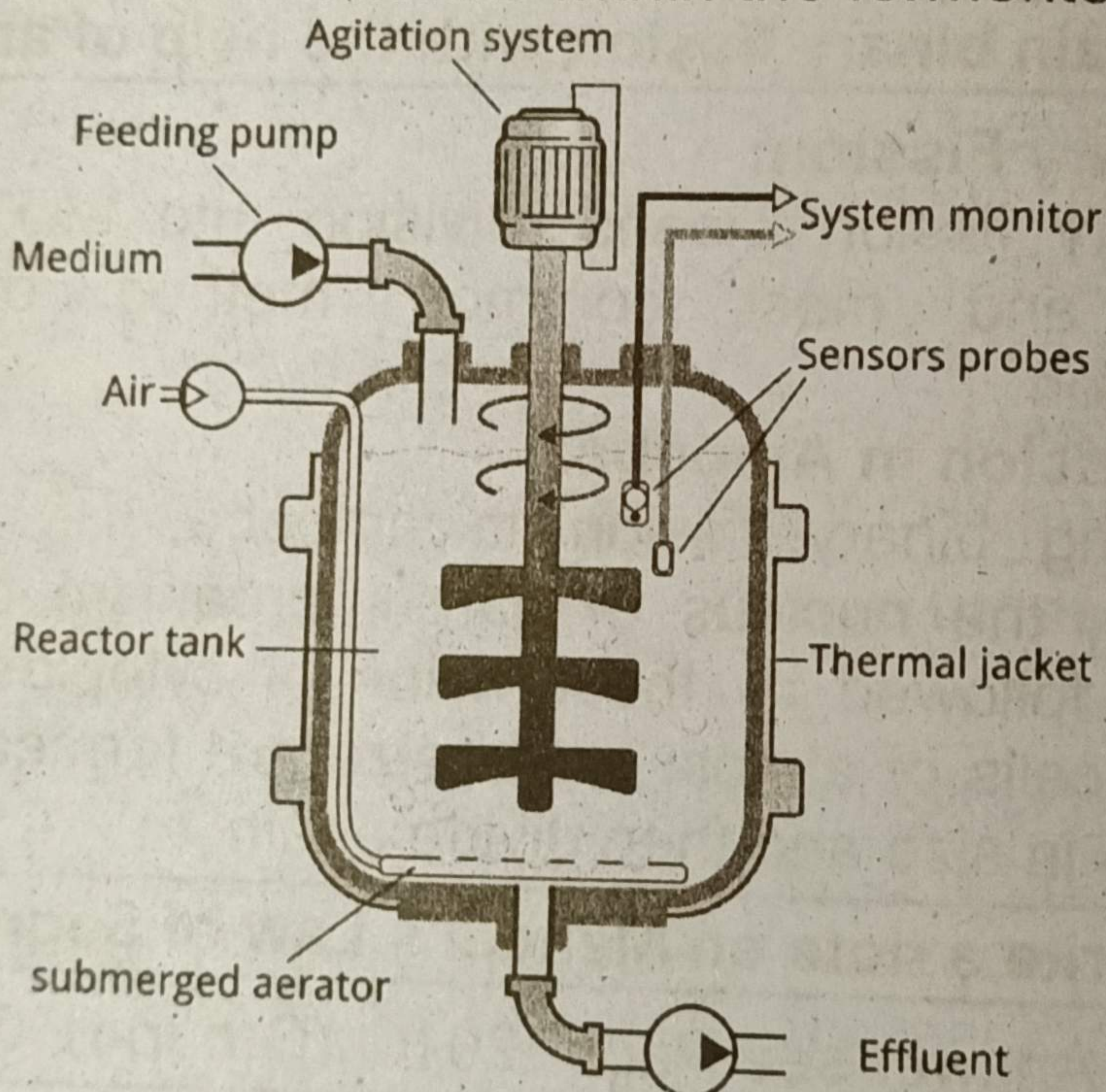


Fig. A batch fermenter.

(ii) Continuous fermentation:

In this type of fermentation, the substrate is added into the fermenter at a fixed rate. The microorganisms within the fermenter remain at the stage of growth. The products of fermentation are continuously taken out.

(b) Describe the mode of action of vaccines. (3)

Ans Mode of action of vaccines:

Pathogens have specific proteins called as 'antigens'. When these pathogens enter into the host's body, these stimulate the formation of antibodies. The antibodies bind with pathogens and destroy them. When a vaccine or weak pathogen is introduced into the blood, the white blood cells are stimulated. The lymphocytes B make antibodies against weak pathogens. These antibodies remain in the blood and provide protection against pathogens. If original pathogens enter into the blood, the preexisting antibodies kill them.

Part-III

(Practical Part)

Note: Attempt any TWO (2) questions.

A-(i) Write the procedure of experiment conducted to identify the presence of carbon dioxide in air exhaled from lungs. (3)

Ans 1. Take two conical flasks and mark them 'A' and 'B'.

2. Fill $\frac{1}{4}$ volume of each flask with limewater.

3. Close flask 'B' with a cork.

4. Pass a glass tube through another cork and fix it on the mouth of flask 'A'.

5. Take a deep breath and blow air in flask 'A' through the glass tube.

Observe the color changes in both flasks of lime water.

(ii) Draw the diagram of experiment set up to detect the presence of tar in cigarette smoke. (2)

Ans For Answer see Paper 2015, (Group-I), Q.A-(i).

B-(i) You observed experiment to investigate chemical composition of bone. Write procedure for this experiment. (3)

- 7- **Example of co-dominance is:**
(a) Blood group A (b) Blood group B
(c) Blood group O (d) Blood group AB ✓
- 8- **The alternate forms of a gene are called:**
(a) Genotype (b) Phenotype
(c) Alleles ✓ (d) Replication
- 9- **Gaseous exchange occur in human:**
(a) Pharynx (b) Trachea
(c) Bronchi (d) Alveoli ✓
- 10- **The cell results by combining sperm and ovum:**
(a) Nucleus (b) Zygote ✓
(c) Genes (d) Chromosomes
- 11- **Number of bones in both feet are:**
(a) 22 (b) 12
(c) 56 ✓ (d) 108
- 12- **The myelin sheath is secreted by:**
(a) Nodes of Ranvier (b) Axon
(c) Dendrites (d) Schwann cells ✓