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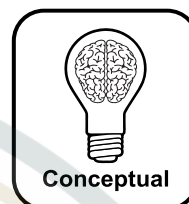
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Table of Contents

Section No.	Learning Material (SECTION – I) Boards' Questions on Textbook		Page #
1 Chapter Wise Learning Material	Chapter-10	Gaseous Exchange	3
	Chapter-11	Homeostasis	13
	Chapter-12	Co-Ordination and Control	22
	Chapter-13	Support and Movement	33
	Chapter-14	Reproduction	42
	Chapter-15	Inheritance	55
	Chapter-16	Man and his Environment	64
	Chapter-17	Bio-Technology	75
2 3 4 5 6	Chapter-18	Pharmacology	84
	Papers of All Boards of Punjab 2024		93
	Solution to Board Papers 2024		129
	Papers of All Boards of Punjab 2025		131
	Solution to Board Papers 2025		167
	AL-Razi $\frac{100}{100}$ Formula Based on Most Frequently Asked Questions in Board Exams		204

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Chapter 10: Gaseous Exchange

Boards' Topic Wise Multiple Choice Questions Classified Precisely According to the
New Examination Techniques of Education Department
(Knowledge, Understanding, Application, Analytical & Conceptual)

10.1 Gaseous Exchange in Plants

1. Energy produced in cellular respiration is transformed into? [RWP-I-23][Knowledge]
A AMP B ADP C ATP D NADP
2. The lenticels allow to pass through them: [FSD-I-23][Understanding]
A Water B Air C Glucose D Lipids
3. Stomata are found: [LHR-II-25][Understanding]
A Xylem B Phloem C Epidermis D Endodermis
4. The process of taking in oxygen from the atmosphere and expelling carbon dioxide from the body is called: [MUL-II,SWL-I](SGD-GI)(FSD-I,MUL-II,SWL-I)[Understanding]
A Cellular respiration B Excretion
C Gaseous exchange D Secretion
5. In the epidermis of leaves and young stems for exchange of gases with the environment are present: [RWP-I,FSD-I, LHR-GI][GUJ-II,MUL-I,SGD-I][Understanding]
A stomata B lenticells C companion cells D fallen cells
6. Stomata are frequently present: [LHR-I,GUJ-I,FSD-II,RWP-II][Understanding]
A On the lower side of the leaf B On the stem
C In the xylem cells D In the phloem cells
7. Most of the exchange of gases in plant leaves is done by _____. [GUJ-II-24][Understanding]
A Cuticle B Normal surface C Lenti cells D Stomata
8. What happens in the exchange of gases? [Understanding]
A Breakage of C-H bonds by releasing energy
B Body movements, which move air in and out of the body
C Taking in oxygen from the air and expelling carbon dioxide from the body
D Blood transport of oxygen to different parts of the body
9. What do the pores in the bark layer allow to pass through? [Conceptual]
A Light B Gases C Water D Chlorophyll

10.2 Gaseous Exchange in Humans

10.2.1 The Air Passageway

10. The respiratory surface in human body is formed by: [GUJ-I-23][Knowledge]
A Alveoli B Bronchiole C Bronchi D Cartilage
11. The gaseous exchange occurs in humans: [GUJ-II-23][Knowledge]
A In pharynx B In trachea C In bronchi D In alveoli
12. How many bronchi are there in the air passageway? [RWP-I-25][Knowledge]
A 2 B 3 C 4 D Many
13. Length of trachea is: [RWP-I-24][Knowledge]
A 12cm B 14cm C 16cm D 18cm
14. Elastic cartilage is found in: [LHR-II-23][SWL-I-24][Understanding]
A Epiglottis B Larynx C Bronchial tubes D Intervertebral discs

15. The gift of the power of speech is given only to:

(MTN-GII,SWL-GII)(LHR-I/II,GUJ-I/II,SWL-I/II)[Understanding]

- A man B monkey C parrot D crow

16. The larynx is composed of:

[GUJ-II,FSD-I/II,LHR-I/II,MUL-I/II][Understanding]

- A Glottis B Trachea C Cartilage D Alveoli

17. A muscular passageway common to food and air is called:

(SWL-GII)(LHR-I/II,SWL-I/II)[Understanding]

- A Pharynx B Larynx C Alveoli D Trachea

18. Larynx is also called:

[SGD-I-25][Understanding]

- A Trachea B Voice box C Alveoli D Bronchioles

19. The membrane of tissue that protects the glottis is called:

[LHR-I,SWL-I,DGK-I,SGD-I][Understanding]

- A Trachea B Glottis C Bronchi D Epiglottis

20. All the alveoli on one side makes:

[LHR-I/II,FSD-I/II,SWL-I/II,DGK-I/II,MUL-I/II][Understanding]

- A Liver B Heart C Stomach D Lung

21. The space inside the nose is called:

[LHR-I/II,SWL-I/II,GUJ-I/II,SGD-II][Understanding]

- A Bronchi B Nasal cavity C Air drum D Pharynx

22. There are _____ around the alveoli:

[BWP-I-24][Understanding]

- A Artery B Arteriole C Capillaries D Vein

23. The opening on the floor of the pharynx is called:

(SWL-GII)(LHR-I/II,SWL-I/II)[Understanding]

- A Trachea B Nostrils C Larynx D Glottis

24. Formed by joining the venules:

[LHR-I,SWL-I,DGK-I,SGD-I][Understanding]

- A Pulmonary vein B Pulmonary artery C Trachea D Alveoli

25. Which of the following functions does not take place in the nasal cavity?

[Understanding]

- A Entrapment of larger dust particles B Addition of moisture to the air drawn in
C Heat gain in inhaled air D Gaseous exchange

26. The muscles of ribs are called:

[Understanding]

- A Smooth muscles B Cardiac muscles C Intercostal muscles D Costal muscles

27. A 12-cm-long duct lies on the anterior side of the esophagus:

[Analytical]

- A Bronchi B Pharynx C Trachea D Larynx

10.2.2 The Lungs

28. The membranes enclosing lungs are called:

[SWL-II-23][Knowledge]

- A Diaphragm B Pleural membranes
C Intercostal membranes D Alveolar membranes

29. How many ribs are there in the human chest wall?

[Knowledge]

- A 12 B 18 C 24 D 26

30. Which one of these is a muscular structure present below the lungs:

[LHR-I-23](GUJ-I,FSD-I,MUL-I,FSD-GI,SGD-I)[Understanding]

- A Trachea B Voice box C Alveoli D Diaphragm

31. The space in which the lungs are located is called:

(LHR-I,GUJ-I,FSD-I,MUL-I,FSD-GI)[Understanding]

- A Thoracic cavity B Oral cavity C Buccal cavity D Abdominal cavity

10.2.3 The Mechanism of Breathing

32. After larynx, air enters into:

[LHR-II-23][Knowledge]

- A pharynx B trachea C oesophagus D bronchi

33. During exercise the breathing rate may increase up to:

[MTN-I-23][LHR-I/II, GUJ-I/II, FSD-I/II, MUL-I/II, DGK-I/II][Knowledge]

- A 30 to 40 times per minute
B 20 to 30 times per minute
C 16 to 20 times per minute
D 16 to 40 times per minute

34. The amount of carbon dioxide in expired air is:

[DGK-II, RWP-GII, SWL-I, MUL-I, SGD-II][MTN-II-23][Knowledge]

- A 0.04 percent
B 1 percent
C 2 percent
D 4 percent

35. Right lung consists of how many lobes?

[SWL-I-24][Knowledge]

- A Two
B Three
C Four
D Five

36. In Normal Circumstances, human breathe per minute:

[SGD-II, BWP-II, MUL-I/II][BWP-II-23][Knowledge]

- A 16 to 20 times
B 30 to 40 times
C 16 to 30 times
D 20 to 30 times

37. The respiratory center in the brain is sensitive to which gas in the blood?

[Knowledge]

- A O_2
B CO_2
C H_2O
D N_2

38. The ratio or percentage of oxygen in the air entering the lungs during inhalation is:

[LHR-I, FSD-GI, MTN-GII][Knowledge]

- A 15%
B 21%
C 25%
D 28%

39. Amount of oxygen in the air exhaled from the human body:

[FSD-II-25][Knowledge]

- A 10% percent
B 16% percent
C 20% percent
D 36% percent

40. The sound production box is called:

[MTN-I-24][Understanding]

- A larynx
B bronchi
C alveoli
D trachea

41. Which gas is inhaled and exhaled air during respiration. The quantity remains the same.

[Understanding]

- A Oxygen
B Nitrogen
C Carbon dioxide
D None of these

42. What concentration is the primary chemical stimulus for respiration?

[GUJ-I-25][Understanding]

- A CO_2 in the blood
B O_2 in the blood
C CO_2 in muscles
D O_2 in muscles

43. The purpose of rib cage is to:

[Analytical]

- A Protect the heart and lungs
B Protect the spinal cord
C Protect the stomach
D Provide an object to which the lungs can attach

10.3 Respiratory Disorders

44. Acute bronchitis usually lasts about:

[SHL-I, MUL-I/II, SGD-I, DGK-I/II][Knowledge]

- A One week
B Two weeks
C Three weeks
D Four weeks

45. The patient's skin colour may change and become dusky or purplish in which disease?

[BWP-I-25][Knowledge]

- A Emphysema
B Asthma
C Bronchitis
D Pneumonia

46. If both lungs become infected, the disease is called:

[FSD-I-25][Understanding]

- A Typhoid
B Double pneumonia
C Gout
D Arthritis

47. What is used to treat pneumonia?

[Application]

- A Inhalers
B Vaccines
C Antibiotics
D Sedatives

48. It is a form of "Alergy" in which there is inflammation of the bronchi occurs:

[SGD-I-23][LHR-I/II, GUJ-I/II, SWL-I/II][Understanding]

- A Bronchitis
B Emphysema
C Pneumonia
D Asthma

10.3.1 Bad Effects of Smoking

49. Which part of the blood transports oxygen from the lungs to the cells of the body?

[Conceptual]

- A Hemoglobin
B Proteins
C Platelets
D Antibiotics

50. Total chemicals in tobacco smoke are:

[SGD-II-23]

(LHR-I/II, GUJ-I/II, SWL-I/II) (MUL-I/II, SGD-I, SWL-I) [Knowledge]

A 4000

B 4500

C 3500

D 3000

51. Cigarette smoke contains at least _____ carcinogens.

[BWP-II-24] [Knowledge]

A 30

B 50

C 70

D 90

52. Every year "World No Tobacco Day" is observed:

[SGD-GII, SWL-I/II, MUL-I] [Knowledge]

A On 31st May

B On 30th May

C On 31st March

D On 21st March

53. Increase the risk of heart diseases: (passive smoking)

[LHR-I/II, GUJ-I/II, SWL-I/II, SGD-GII] [Knowledge]

A 15-20%

B 20-30%

C 25-30%

D 30-45%

54. Many other chemicals in smoke accelerate the formation of _____:

[LHR-I/II, SWL-I/II, GUJ-I/II, SGD-II] [Understanding]

A White

B Red

C Platelets

D Osteocytes

55. Which disease is not associated with lungs?

(LHR-I/II, GUJ-I/II, SWL-I/II) (LHR-GI) [Understanding]

A Asthma

B Emphysema

C Myopia

D Pneumonia

56. Nicotine has been used by what name in the past?

[Application]

A Medicine

B Insecticide

C Herbicide

D Fertilizer

57. Annual deaths due to cancer worldwide.

[Analytical]

A 10 lakh

B 11 lakh

C 12 lakh

D 13 lakh

58. At what rate smoking is increasing in developing countries?

[Analytical]

A 3.2%

B 3.4%

C 3.5%

D 3.6%

59. Passive Smoking increases the risk of heart diseases by what percentage?

[Analytical]

A 20 to 25 percent

B 25 to 30 percent

C 25 to 35 percent

D 20 to 30 percent

Answers Key

1. C	2. B	3. C	4. C	5. A	6. A	7. D	8. C	9. B	10. A	11. D
12. A	13. A	14. B	15. A	16. C	17. A	18. B	19. D	20. D	21. B	22. C
23. D	24. A	25. D	26. C	27. C	28. B	29. C	30. D	31. A	32. B	33. A
34. D	35. B	36. A	37. B	38. B	39. B	40. A	41. B	42. A	43. A	44. B
45. D	46. B	47. C	48. D	49. A	50. A	51. B	52. A	53. C	54. C	55. C
56. B	57. D	58. B	59. B							

(Knowledge, Understanding, Application, Analytical & Conceptual)

محکمہ تعلیم کی نئی امتحانی تکنیکس کی بنیاد پر ٹاپک وائر تیار کیے گئے مختصر جوابی سوالات

10.1 Gaseous Exchange in Plants

1. What is meant by cellular respiration?

[LHR-I-25, GUJ-I-25]

[SWL-II, RWP-II] [SGD-II] [GUJ-II] [RWP-II, FSD-I] [SWL-I] [GUJ-I-23] [LHR-II-23] [Knowledge]

Ans: Cellular respiration refers to the process in which oxidation-reduction reactions break C-H bonds in food and convert the released energy into ATP.

2. What is meant by gaseous exchange?

[RWP-II-25, MTN-I-25] [MTN-I, RWP-I-23] [Knowledge]

Ans: Taking in of oxygen and giving out of carbon dioxide is termed as gaseous exchange.

3. What is meant by aerobic respiration?

(LHR-I/II, DGK-GII) (SWL-GII, SGD-II) [Knowledge]

Ans: In aerobic respiration, oxygen is used and during this complete oxidation of food substances takes place. Carbon dioxide and water are formed in this process.

4. Write difference between Stomata and lenticels.

[SGD-II-25] [SGD-II-23] [MTN-II-23] [Understanding]

Ans: **Stomata:** Leaves and young stems have pores through which gases are exchanged with the environment. These are called stomata.

Lenticels: All surfaces of woody stems and mature roots are covered with bark. This bark cannot absorb water and gases. However, the bark layer has specific openings called lenticels. These holes allow gases to pass through.

5. **What is the difference between breathing and cellular respiration?**

[DGK-I-24] [SGD-I-25][Understanding]

Ans: Difference between breathing and cellular respiration.

Breathing	Cellular respiration
The term breathing is used for the process through which animals take air in their bodies to get oxygen from it and then give out the air to get rid of carbon dioxide.	Cellular respiration is the process in which C-H bonds in food are broken by oxidation-reduction reactions and the released energy is converted into ATP.

6. **How do gases exchange in leaves and young stems?**

[LHR-I/II, GUJ-I/II, FSD-I, SWL-II, SGD-II][Understanding]

Ans: The leaves and young stems have **stomata** in their epidermis. The gaseous exchange occurs through these stomata. The inner cells of leaves (mesophyll) and stems also have air spaces among them, which help in the exchange of gases.

7. **Describe the difference between stomata and air spaces.**

[FSD-GI, SGD-I/II, SWL-I/II, MUL-I/II][Understanding]

Ans: Difference between stomata and air spaces:

Stomata	Air Spaces
The leaves and young stems have stomata in their epidermis. The gaseous exchange occurs through these stomata.	The inner cells of leaves (mesophyll) and stems also have air spaces among them, which help in the exchange of gases.

8. **Give reasons that respiration involves mechanical and biochemical actions?**

[Conceptual]

Ans: Respiration involves mechanical and biochemical actions because contraction and expansion of ribs, diaphragm and lungs are mechanical actions. Oxidation-reduction reactions in respiration break C-H bonds and convert energy into ATP, these are biochemical reactions.

9. **Justify that how photosynthesis and respiration takes place side by side during the day?**

[Conceptual]

Ans: During the daytime when the mesophyll cells of leaves are carrying out photosynthesis and respiration side by side, the oxygen produced in photosynthesis is utilized in cellular respiration. Similarly the carbon dioxide produced during cellular respiration is utilized in photosynthesis.

10. **Argue that breathing and respiration are not synonyms.**

[Conceptual]

Ans: In breathing, organisms only take air into the body and exchange gases, while in respiration, oxidation-reduction reactions break the C-H bonds in the food and convert the energy into ATP. So, breathing and respiration are not synonymous.

10.2 Gaseous Exchange in Humans

10.2.1 The Air Passageway

11. **What is the difference between glottis and epiglottis?**

[DGK-II-23][Knowledge]

Ans: On the floor of the pharynx there is an opening that opens into the larynx called the glottis. The glottis is guarded by a flap of tissue called the epiglottis.

12. Differentiate between bronchi and bronchioles. [MUL-II,RWP-II][BWP-II-23][LHR-I-24][Knowledge]

Ans: Bronchi: On entering the chest cavity, the trachea divides into two smaller tubes called bronchi (Singular: bronchus).

Bronchioles: The bronchi continue dividing in the lungs until they make several fine tubes called bronchioles.

13. Write the structure and function of alveolus. [LHR-I/II,RWP-I/II][Knowledge]

Ans: Alveolus: Each alveolus is a sac-like structure lined by a single layer of epithelial cells. It is bound on the outside by network of capillaries. They form the respiration surface in human body.

14. What are alveolar ducts and alveoli? (LHR-I/II,GUJ-I/II,SWL-I/II)[MUL-I][SGD-II-23][Knowledge]

Ans: The bronchioles end in very fine and small tubules called alveolar ducts. Each alveolar duct opens into a cluster of air sacs, called alveoli. These alveoli form the surface of gas exchange in the human body.

15. Describe the function of nasal cavity. [MTN-I-24][GUJ-II-23][Understanding]

Ans: The nose encloses the nasal cavity. It opens to the outside through the openings called the nostrils. The nasal cavity is divided into two portions by a wall. Each portion is lined by fine hairs and mucous which filter the dust particles from the air. The mucous also moistens and warms the incoming air and keeps its temperature nearly equal to that of the body.

16. Is it true that trachea remains always open, if yes, then why? [RWP-I-23][Understanding]

Ans: Yes, the trachea remains open all the time because it contains C-type cartilage, which protects the trachea from collapsing.

17. What are Vocal Cords? Write their function. [RWP-II-23][FSD-II-23][BWP-I-23][Understanding]

Ans: Two pairs of fibrous bands called vocal cords are stretched across the larynx. The vocal cords vibrate when the air passes through them. This vibration produces sounds.

18. How sound is produced in Voice Box? [SGD-I-23][Understanding]

Ans: The larynx is also called the voice box. Two pairs of fibrous bands called vocal cords are stretched across the larynx. The vocal cords vibrate when the air passes through them. This vibration produces sounds.

19. What is the role of "C" shaped cartilage rings in the wall of trachea?

(LHR-I/II,GUJ-I/II,SWL-I/II) [FSD-I][SWL-I-23][Understanding]

Ans: This cartilage keeps the trachea from collapsing even when there is no air inside it.

20. What are the functions of mucus and hair inside the nose?

[RWP-I-25] [SGD-I-25][Understanding]

Ans: Function of mucus and hair: The nasal cavity is divided into two portions by a wall. Each portion is lined by fine hairs and mucous which filter the dust particles from the air. The mucous also moistens and warms the incoming air and keeps its temperature nearly equal to that of the body.

21. Write the difference between nasal cavity and nostrils.

[LHR-I,SWL-I,DGK-I,SGD-I][Understanding]

Ans: Difference between Nasal Cavity and Nostrils:

Nasal cavity	The nostrils
The space inside the nose is called the nasal cavity.	Nasal cavity opens to the outside through the openings called the nostrils.

22. What is trachea? Where is it located? [SGD-GII, MTN-GII][Understanding]

Ans: Trachea: Larynx continues to the **trachea**, which is also called the windpipe. It is about 12 cm long tube which lies in front of the oesophagus. There are C-shaped cartilaginous rings in the wall of trachea. The cartilages keep the trachea from collapsing even when there is no air in it.

23. How are our speech sounds made?

(LHR-I/II, GUJ-I/II, SWL-I/II) [DGK-II][Understanding]

Ans: Production of Voice: The vibrations in vocal cords and the movements of lips, cheeks, tongue and jaws produce specific sounds which result in speech.

24. Describe the pathway of air from the nasal cavity to the alveoli.

[Understanding]

Ans: The nasal cavity opens into the pharynx through the internal nostrils. The pharynx opens into the larynx through the glottis. The larynx opens into a single duct called the trachea. The trachea divides into two bronchi and each bronchus divides into bronchioles. The bronchioles end as fine tubules called the **alveolar ducts**. Each alveolar duct opens into a cluster of pouches called **alveoli**.

25. How vibrations are produced in the vocal Cords?

[Conceptual]

Ans: When air passes through the vocal cords, vibrations are produced.

26. Justify why the rate of breathing cannot be controlled for longer?

[Conceptual]

Ans: The rate of breathing cannot be controlled for longer because its movements are largely involuntary.

10.2.2 The Lungs**27. What are the intercostal muscles?**

(LHR-I/II, GUJ-I/II, SWL-I/II) [LHR-I, SWL-II][Knowledge]

Ans: The muscles attached to the ribs are called intercostal muscles.

28. How do pleural membranes protect lungs?

[LHR-II-23][Understanding]

Ans: Each lung is enclosed by two membranes called the outer pleural membrane and the inner pleural membrane. The membranes enclose a fluid which provides lubrication for the free expanding and contracting of the lungs.

10.2.3 The Mechanism of Breathing**29. Write the names of the two stages of the process of respiration.**

[FSD-I-23][Knowledge]

Ans: The two stages of the respiration process are as follows:

- (i) Inspiration (ii) Expiration

30. What is a Diaphragm?

(LHR-I/II, GUJ-I/II, SWL-I/II)[MUL-I][Knowledge]

Ans: Diaphragm: Below the lungs there is a thick muscular structure called diaphragm.

31. What does respiratory center mean?

(GUJ-I, FSD-I, DGK-I/II, SGD-GII)[Knowledge]

Ans: Respiratory center means the rate of respiration is controlled by the respiratory center in the brain. The respiratory center is sensitive to the concentration of carbon dioxide in the blood.

32. Differentiate between inspiration and expiration.

[LHR-II-23][Understanding]

Ans: Inspiration: During inspiration, the rib muscles contract and ribs are raised. At the same time the dome-shaped diaphragm contracts and is lowered. These movements increase the area of the thoracic cavity, which reduces the pressure on lungs. As a result, the lungs expand and the air pressure within them also decreases. The air from outside rushes into the lungs to equalize the pressure on both sides

Exhalation: After the gaseous exchange in the lungs, the impure air is expelled out in exhalation. The rib muscles relax bringing the ribs back to the original position. The diaphragm muscles also relax and it gets its raised dome shape. This reduces the space in the chest cavity and increases the pressure on lungs. The lungs contract and the air is expelled out of them.

10.3 Respiratory Disorders

33. Define bronchitis. What are its causes?

[LHR-GI,FSD-GI,SGD-GI-II,BWP-GI,DGK-I/II][Knowledge]

Ans: Bronchitis: Inflammation in the bronchi or bronchioles is called bronchitis. In this inflammation, there is an excessive secretion of mucus inside the tubes, which swells the walls of the tubes.

Cause: It is caused by viruses, bacteria or inflammatory chemicals (e.g. tobacco smoke).

34. Write the symptoms of bronchitis.

[GUJ-I-23][DGK-I-23][Knowledge]

Ans: Symptoms of bronchitis include a cough, mild wheezing, fever, chills and shortness of breath.

35. Write the symptoms of emphysema.

[SGD-I-23][MTN-I-23][GUJ-II-23][Knowledge]

Ans: The symptoms of emphysema include shortness of breath, fatigue, recurrent respiratory infections and weight loss.

36. What percentage of lung tissue is lost in a patient with emphysema?

[Analytical]

Ans: In emphysema, 50% to 70% of the tissues in the patient's lungs are lost.

37. Write the symptoms of pneumonia.

[Application]

[FSD-II,LHR-I/II,MUL-I/II][SWL-II-23][BWP-II-23][SWL-I-23]

Ans: The symptoms of pneumonia include a cold that is followed by a high fever, shivering, and a cough with sputum production. Patient may become short of breath. The patient's skin colour may change and become dusky or purplish. It is due to poor oxygenation of blood.

38. What are the causes of pneumonia?

[SWL-II-23][Understanding]

Ans: The most common cause of pneumonia is the bacterium *streptococcus pneumoniae*. Also, some viral or fungal infections can cause pneumonia.

39. What is meant by double pneumonia? Write the name of the bacterium that causes it.

[LHR-I,MTN-GI-II,BWP-GI)(SGD-GI)(DGK-I/II,SWL-I/II)[Understanding]

Ans: Double Pneumonia: Pneumonia is an infection of the lungs. If this infection affects both lungs, it is called double pneumonia. The bacterium that causes double pneumonia is *Streptococcus pneumoniae*.

40. Define asthma and write its causes.

[GUJ-I][DGK-I,SWL-I,FSD-II][RWP-II][MTN-II][Understanding]

Ans: Asthma: Asthma is a form of allergy, in which there is inflammation of the bronchi, more mucous production and narrowing of the airways.

Causes: In asthma patients, the bronchi and bronchioles become sensitive to different allergens (allergy causing factors) e.g. dust, smoke, perfumes, pollens etc. When exposed to any of such allergens, the sensitive airways show immediate and excessive response of constriction. In this condition, the patient feels difficulty in breathing.

41. Write symptoms of Asthma.

[LHR-I-23][RWP-I-23][MTN-II-23][DGK-II-23][Knowledge]

Ans: The symptoms of asthma vary from person to person. The major symptoms include shortness of breath (especially with exertion or at night), wheezing (whistling sound when breathing out), cough and chest tightness.

10.3.1 Bad Effects of Smoking

42. What is meant by passive smoking? And how is it harmful?

[DGK-II-23][LHR-I/II,MUL-I/II,FSD-I,RWP-II][Knowledge]

Ans: Passive smoking (the inhalation of smoke from another's smoking) is also a cause of lung cancer.

Non-smokers who are exposed to second-hand smoke (passive smoke) at home or at work increase their heart disease risk by 25-30% and their lung cancer risk by 20-30%.

43. Define arteriosclerosis.

[GUJ-I,MUL-I/II,SHL-I,SGD-II][Knowledge]

Ans: Many other chemicals in smoke increase the production of blood platelets. When platelets are more than the normal numbers, they make the blood viscous and it can lead to arteriosclerosis.

44. Except lungs on which organs of body smoking affects?

[GUJ-I-23][Understanding]

Ans: Apart from the lungs, smoking also affects the kidneys, oral cavity, larynx, breast and bladder.

45. What are carcinogens?

[FSD-I-23][Understanding]

Ans: Substances that cause cancer are called carcinogens.

46. What is lung cancer?

[DGK-I-23][Understanding]

Ans: Lung cancer is a disease of uncontrolled cell divisions in the tissues of the lung. The cells continue to divide without any control and form tumours. The cellular growth may also invade adjacent tissues beyond the lungs.

47. Write two bad effects of smoking.

[SHL-II,LHR-I,BWP-I,FSD-I,MUL-I/II,SGD-I/II][MTN-II-23][LHR-I-23][BWP-II-23][SWL-II-23][Understanding]

Ans: (i) Smoking can cause cancer of kidney, oral cavity, breast etc.

(ii) Smoking also affects the circulatory system. Carbon monoxide in tobacco smoke reduces hemoglobin's ability to carry oxygen.

48. Write down the primary goal of World Health Organization to prevent lung cancer.

[GUJ-II-23][Application]

Ans: Eliminating tobacco smoking is a primary goal in the prevention of lung cancer. The World Health Organization has called the governments to stop tobacco advertising to prevent young people from taking up smoking.

49. How smoking affects circulatory system?

[DGK-I-23][Application]

Ans: Smoking also has effects on the circulatory system. 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 viscous and it can lead to arteriosclerosis.

50. Write the name of the cancer-causing chemical in cigarette smoke.

[GUJ-I/II,MUL-I/II,SGD-I/II,RWP-II][Application]

Ans: Tobacco smoke contains more than 4,000 chemicals, of which at least 50 are carcinogens and there are many other toxic chemicals including benzene, aldehyde and ethane oxide.

51. Write past nicotine use.

[LHR-I,SGD-I/II,MUL-I/II,RWP-GII][Application]

Ans: Nicotine: Nicotine is a powerful poison that was used as an insecticide in the past. When it is inhaled during smoking, it reaches the circulatory system and not only hardens the walls of the arteries but also damages the brain tissues.

52. How many times does smoking increase the risk of tuberculosis and pneumonia?

[Analytical]

Ans: Smoking increases the risk of tuberculosis two to four times and pneumonia four times.

53. How many times do smokers have more tooth loss than non-smokers?

[Analytical]

Ans: Smokers have two to three times more tooth loss than non-smokers.

54. How many times does smoking increase the risk of lung cancer?

[Analytical]

Ans: Smoking increases the risk of lung cancer by 20 to 30%.

Exercise

(1) The process of gaseous exchange involves:

- A Breakdown of C-H bonds to yield energy
- B Physical movements that take air in and out of body
- c Getting oxygen from the air and removing carbon dioxide
- D Transport of oxygen by the blood to different parts of the body

(2) Most of the gaseous exchange in a leaf occurs through:

- a Stomata
- B General surface
- C Cuticle
- D Lenticels

(3) How many bronchi are there in the air passageway?

- A One
- b Two
- C Many
- D None

(4) Where does the gaseous exchange occur in humans?

- A Pharynx
- B Trachea
- C Bronchi
- d Alveoli

(5) Which structure actively helps in taking the air out of lungs?

- A Nasal cavity
- B Bronchus
- C Bronchiole
- d Diaphragm

(6) The primary chemical stimulus for breathing is the concentration of:

- a Carbon dioxide in blood
- B Oxygen in blood
- C Carbon dioxide in muscles
- D Oxygen in muscles

(7) Point out the FALSE statement about respiration.

- A Gases can easily pass through the walls of the alveoli
- B Gas exchange in lungs is very efficient because lungs provide large surface area.
- c In emphysema the walls of alveoli break and there is more surface area
- D Dust particles can damage the lungs by irritating the inner alveoli surface

(8) A disease involving the breakdown of air sacs of the lungs is:

- A Pneumonia
- B Bronchitis
- C Asthma
- d Emphysema

(9) Which process does not occur in the nasal cavity?

- A Trapping of large dust particles
- B Humidification of the inhaled air
- C Warming of the inhaled air
- d Exchange of gases

(10) What type of blood vessels surrounds the alveoli?

- A Artery
- B Arteriole
- c Capillary
- D Vein

Long Questions

1. Describe the osmoregulatory function of the kidney.

2. Write a note on emphysema.

3. Describe the steps of inhalation and exhalation in man or explain the breathing mechanism in man or explain the process of respiration in man.

**AL-RAZI
UP-TO-DATE
PAPERS**

**BOARD PAPERS
GROUP I-II**

2024-2025

D.G.Khan (Group-I) 2024

Roll No. Of Candidate:

Paper Code: 7081

Date:

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 Morning ☐ Evening ☐

Time: 20 Minutes

Marks: 15

Objective Type

Note: You have four choices for each objective types question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number on your answer book. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

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- (1) Amount of nitrogen in inspired air is:
A 21% B 0.04% C 79% D 16%
- (2) Gums are obtained from:
A Rubber plant B Keekar C Ladyfinger D Coniferous plant
- (3) Total number of cranial nerves is:
A 33 B 31 C 26 D 12
- (4) In human body which one of the followings stores minerals?
A Bones B Brain C Muscles D Kidney
- (5) Reproduction takes place through budding in:
A Planaria B Amoeba C Hydra D Bacteria
- (6) Water is required for reproduction by:
A Angiosperms B Ferns C Gymnosperms D Mosses
- (7) Number of homologus chromosome pairs is:
A 22 B 24 C 23 D 46
- (8) DNA back bone is formed of:
A DNA - RNA B Phosphate-Sugar C DNA-Protein D DNA - DNA
- (9) Which of the followings is not eaten by other animals?
A Tertiary carnivores B Producers C Secondary consumers D Primary consumers
- (10) Nitrites are converted into nitrates by:
A S. pneumoniae B Denitrifying bacteria C Nitrosomonas D Nitrobacter
- (11) Out of the followings, antiviral protein is:
A Interferons B Urokinase C Thymosin D Beta - endorphin
- (12) Heroin is obtained from:
A Animals B Morphine C Cactus D Fungi

Time Allowed: 2:10 Hours

(SUBJECTIVE TYPE)

Maximum Marks: 60

Section - I

Q2. Write short answers to any FIVE (5) questions.**2×5=10**

- i. How structure of trachea is different from bronchi?
- ii. Differentiate between cellular respiration and breathing.
- iii. How we can protect ourselves from lung cancer?
- iv. Define osmoregulation.
- v. How kidney stones are formed?
- vi. Why deficiency of vitamin A causes poor night vision?
- vii. Define optics and ophthalmology.
- viii. How calcitonin and parathormone hormones regulate level of calcium ions in blood?

Q3. Write short answers to any FIVE (5) questions.**2×5=10**

- i. Differentiate the Spongy and Compact bone.
- ii. Define Skeleton.
- iii. Why water is necessary for seed germination?
- iv. What is Spermatogenesis?
- v. Write four names of nitrogenous bases in DNA molecule.
- vi. What is meant by incomplete dominance?
- vii. What is a monohybrid cross ?
- viii. State the law of segregation.

Q4. Write short answers to any FIVE (5) questions.**2×5=10**

- i. Write two bad effects of acid rain.
- ii. Write the difference between secondary and tertiary consumers.
- iii. What are phytoplankton? What is their role in ecosystem?
- iv. Write the names of few carnivorous plants which lives as predators.
- v. What is a fermenter?
- vi. Why the use of single cell protein is essential in future?
- vii. Write the bad effects of sedative drugs.
- viii. What is a drug ?

Section - II

Note: Attempt TWO question in all.**9 × 2 = 18**

5. (a) How Halophytes are adapted to live in salty environment ? Comment 4
(b) How structure of cartilage and bones correlate to their functions? Explain 5
6. (a) Explain the process of reflex action with the help of an example. 2+2
(b) Describe the process of seed germination in detail. 1+4
7. (a) Write down important objectives of Genetic Engineering. 4
(b) What are addictive drugs ? Write note on Narcotics and Hallucinogens. 5

D.G.Khan (Group-II) 2024

Roll No. Of Candidate: _____

Paper Code: 7082

 Date:

D	D	M	M	Y	Y	Y	Y

 Morning ☐ (M)
 Evening ☐ (E)

Time: 20 Minutes

Marks: 15

Objective Type

Note: You have four choices for each objective types question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number on your answer book. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

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- (1) In monohybrid crosses, F₂ generation has the ratio of phenotype was:

A 9:3:3:1
B 3:1
C 9:4:3:0
D 4:0
- (2) In ecosystem, the organisms that are responsible for the recycling of plant and animal wastes are:

A Consumers
B Producers
C Competitors
D Decomposers
- (3) Recycling of one ton paper can save:

A 10 trees
B 15 trees
C 18 trees
D 17 trees
- (4) A thick muscular structure present below the lungs is called:

A Alveolus
B Tracheoles
C Diaphragm
D Branchioles
- (5) The structure that creates an insulating blanket of warm air in animals is:

A Dermis
B Lungs
C Kidneys
D Goose bumps
- (6) The special neuroglial cells located at regular intervals along axons are called:

A Dendrites
B Myelin sheath
C Schwann cells
D Nodes of Ranvier
- (7) How does vertebral column contribute to the over all support to human body?

A It encases the brain for protection
B It connects pectoral girdle to pelvic girdle

C It provides main support to the body mass
D None of these
- (8) Which application of biotechnology involves the production of insulin and interferon?

A Food and Agriculture
B Medicine

C Environment
D Genetic engineering
- (9) Which category of addictive drugs capable of being develop dependence or addictive?

A Antibiotics
B Narcotics
C Sedatives
D Analgesics
- (10) What is formed from ovule after fertilization?

A Fruit
B Seed
C Flower
D Leaves
- (11) In most plants, the sporophyte is:

A Small in size
B Dominant

C Independent
D Dominant and independent
- (12) Pink flowered 4'o clock plant is an example of:

A Incomplete dominance
B Co-dominance

C Complete dominance
D non of these

Time Allowed: 2:10 Hours

(SUBJECTIVE TYPE)

Maximum Marks: 60

Section - I

Q2. Write short answers to any FIVE (5) questions.**2×5=10**

- i. Write down symptoms of bronchitis.
- ii. What is double Pneumonia ?
- iii. What is difference between breathing and respiration?
- iv. Which organs work for homeostasis in humans?
- v. How kidney stones can be removed by lithotripsy?
- vi. What is meant by fight or flight? Which system is responsible for that?
- vii. What is the function of Medulla Oblongata?
- viii. Write down two main contributions of Ibn-al-Haytham.

Q3. Write short answers to any FIVE (5) questions.**2×5=10**

- i. Differentiate the movement and locomotion.
- ii. What is a bone ? Write its two functions.
- iii. What is meant by grafting?
- iv. What is meant by double fertilization?
- v. Write down the composition of Chromatin material.
- vi. Define transcription.
- vii. What is Genotype ? Also write names its types.
- viii. Write two reasons for the selection of pea plant in genetics.

Q4. Write short answers to any FIVE (5) questions.**2×5=10**

- i. Herbivores are called primary consumers. Why?
- ii. What are the effects of excessive denitrification?
- iii. What is permanent parasitism ? Give an example.
- iv. Define pollution.
- v. Write down two uses of glycerol.
- vi. How can single cell proteins help in controlling pollution?
- vii. What are sedatives ? Give an example.
- viii. What is the role of Joseph Lister in surgery?

Section - II

Note: Attempt TWO question in all.**9 × 2 = 18**

5. (a) Write Osmoregulatory function of kidney. **4**
(b) What is meant by joints? Write their types. **5**
6. (a) Explain reflex action with the help of example and diagram. **4**
(b) Describe the process of Spermatogenesis and Oogenesis. **2+3**
7. (a) Write down the role of biotechnology in the field of food and agriculture. **4**
(b) Describe the method of action of vaccines. **5**

Lahore (Group-I) 2025

Roll No. Of Candidate: _____

Paper Code: 1081

Date:

D	D	M	M	Y	Y	Y	Y

 Morning (M)
Evening (E)

Time: 20 Minutes

Marks: 12

Objective Type

Note: You have four choices for each objective types question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number on your answer book. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

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1. **The destruction of the walls of alveoli is:**
 A Bronchitis B Emphysema C Pneumonia D Asthma
2. **Treatment for the end stage kidney failure is:**
 A Lithotripsy B Peritoneal dialysis
 C Haemodialysis D Kidney transplant
3. **Hormone responsible for male secondary sex characters is:**
 A Estrogen B Progesterone C Testosterone D Glucagon
4. **The inflammation of the membranes at joints is:**
 A Osteoporosis B Osteoarthritis
 C Rheumatoid arthritis D Gout
5. **Vegetative propagation by leaves is found in:**
 A Bryophyllum B Mint C Yams D Calocacia
6. **An insect pollinated flower is:**
 A Grass B Sunflower C Willow D Corn
7. **The genotype having identical alleles in a gene pair is called:**
 A Azygous B Hemizygous C Heterozygous D Homozygous
8. **Theory of natural selection was proposed by:**
 A Charles Darwin B C de Buffon C J de Lamarck D Gregor Mendel
9. **The self-sufficient unit of an environment is:**
 A Biosphere B Ecosystem C Community D Population
10. **The principal building block of many biomolecules is:**
 A Nitrogen B Hydrogen C Oxygen D Carbon
11. **In glycolysis the glucose molecule is broken into two molecules of:**
 A Ethanol B Lactic acid C Pyruvic acid D Acetic acid
12. **Mescaline comes from:**
 A Mushroom B Cactus C Cannabis D Morning glory

Time Allowed: 1:45 Hours

(SUBJECTIVE TYPE)

Maximum Marks: 48

Section - I

Q2. Write short answers to any FIVE (5) questions.**2×5=10**

- (i) Write symptoms of pneumonia.
- (ii) How smoking effects badly on human health? Write any two effects.
- (iii) How will you differentiate between acute bronchitis and chronic bronchitis?
- (iv) Define cellular respiration.
- (v) What is lithotripsy?
- (vi) Write any two major causes of kidney failure.
- (vii) Write down functions of hypothalamus.
- (viii) Write name of three parts of inner ear of man.

Q3. Write short answers to any FIVE (5) questions.**2×5=10**

- (i) Write name of ends of skeletal muscle.
- (ii) What are the characteristics of gout?
- (iii) Explain corms.
- (iv) Write disadvantages of vegetative propagation in plants.
- (v) What is co-dominance? Give example.
- (vi) What is meant by inheritance in biology?
- (vii) Define homologous chromosomes.
- (viii) What is meant by nucleosomes?

Q4. Write short answers to any FIVE (5) questions.**2×5=10**

- (i) Describe two methods of nitrogen fixation.
- (ii) Compare mutualism and commensalism.
- (iii) Compare ecosystem and biosphere.
- (iv) Write two effects of global warming.
- (v) Write uses of glycerol.
- (vi) How gene of interest is isolated in genetic engineering?
- (vii) What are antibiotics? Also give example.
- (viii) Define pharmacology and pharmacologist.

Section - II

Note: Attempt TWO question in all.**9 × 2 = 18**

- 5. (a) Write detail of kidney transplant. **5**
- (b) Explain components of human skeleton. **4**
- 6. (a) Write a note on nerve cell or neuron. **5**
- (b) Discuss the techniques of tissue culture and cloning. **4**
- 7. (a) Describe the achievements of genetic engineering in medicine, agriculture and environment. **5**
- (b) Write a note on resistance against antibiotics. **4**

Lahore (Group-II) 2025

Roll No. Of Candidate: _____

Paper Code: 1081

 Date:

D	D	M	M	Y	Y	Y	Y

 Morning (M) Evening (E)

Time: 20 Minutes

Marks: 12

Objective Type

Note: You have four choices for each objective types question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number on your answer book. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

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8	8	8	8	8	8	8	8	8	8	8	8
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1. Example of codominance is:

- A Blood groups B Height C Weight D Intelligence

2. Example of secondary consumers is:

- A Livestock B Snake C Goat D Cow

3. When does E-Coli bacteria is created:

- A 1980 B 1975 C 1977 D 1970

4. Stomata are present in:

- A Xylem B Phloem C Epidermis D Endodermis

5. Dolly is name of:

- A Rat B Sheep C Flower D Rabbit

6. Length of human kidney is:

- A 10 cm B 5 cm C 4 cm D 27 cm

7. Carbonates in crust of soil also form:

- A O₂ B CO₂ C H₂O D H₂

8. Number of soft bones in new born babies:

- A 200 B 206 C 256 D 300

9. The unit of nervous system is:

- A Nucleus B Neuron C Receptors D Nephron

10. Example of corms is:

- A Ginger B Potato C Onion D Garlic

11. Root is made from:

- A Testa B Plumule C Micropyle D Radical

12. Number of hydrogen bonds in adenine and thamine:

- A Two B Three C Four D One

Time Allowed: 1:45 Hours

(SUBJECTIVE TYPE)

Maximum Marks: 48

Section - I

Q2. Write short answers to any FIVE (5) questions.**2×5=10**

- (i) How lungs are protected from free expanding and contracting movements?
- (ii) What is asthma? Give its symptoms.
- (iii) Write two bad effects of smoking.
- (iv) Differentiate acute bronchitis and chronic bronchitis.
- (v) What are succulent organs? Give an example.
- (vi) How kidneys do pressure filtration?
- (vii) What is the reason of night blindness?
- (viii) Why adrenaline is termed as 'emergency hormone'?

Q3. Write short answers to any FIVE (5) questions.**2×5=10**

- (i) What are tendons? Write their function.
- (ii) Write two examples of hinge joints.
- (iii) Define epigeal germination.
- (iv) Write function of Cowper's glands.
- (v) Describe phenotype ratio of F₂ generation derived by Mendel's Law of Segregation.
- (vi) Why Mendel selected pea plants for his experiments?
- (vii) Write two sources of variations.
- (viii) Define artificial selection.

Q4. Write short answers to any FIVE (5) questions.**2×5=10**

- (i) If producers are eliminated from ecosystem, what will happen?
- (ii) Define biosphere.
- (iii) Briefly describe global warming.
- (iv) How biogeochemical cycles play their role in maintaining an ecosystem?
- (v) What is meant by fermentation?
- (vi) Define glycolysis.
- (vii) What is the function of antibodies in blood?
- (viii) Define sedatives and give one example.

Section - II

Note: Attempt TWO question in all.**9 × 2 = 18****5. (a) Write a note on kidney stone formation and its treatment.****5****(b) Write detail of arthritis.****4****6. (a) Explain autonomic nervous system.****5****(b) Describe the structure of a typical dicot seed.****4****7. (a) Write basic steps in genetic engineering.****5****(b) Write a note on narcotics and their effects.****4**

AL-RAZI
UP-TO DATE PAPERS
BOARD PAPERS
GROUP I-II SOLVE
2024-2025

Solution of Multan Board (G-I) 2024**Objective Type**

1. D Vocal-cords
2. C Rubber plant
3. B Neuron
4. D Elastic cartilage
5. A Bryophyllum
6. B Ovary
7. C Round yellow
8. A $\begin{smallmatrix} A & B \\ | & | \end{smallmatrix}$
9. C Sun
10. D Aspergillus
11. B 17
12. D Analgesics

Solution of Multan Board (G-II) 2024**Objective Type**

1. C Tissue culture
2. B Birth canal
3. A Nucleosomes
4. D Artificial selection
5. B Predator
6. C Food web
7. D Risen by 3.4%
8. A Glucose.
9. C Paralysis
10. B Esterogen
11. A Urokinase
12. D Silver nitrate

Solution of D.G.Khan Board (G-I) 2024**Objective Type**

1. C 79%
2. B Keekar
3. D 12
4. A Bones
5. C Hydra
6. B Ferns
7. C 23
8. B Phosphate-Sugar
9. A Tertiary carnivores
10. D Nitrobactor
11. A Interpherons
12. B Morphine.

Solution of D.G.Khan Board (G-II) 2024**Objective Type**

1. B 3:1
2. D Decomposers
3. D 17 trees
4. C Diaphragm
5. D Goose bumps
6. C Schwann cells
7. C It provides main support to the body mass
8. D Genetic engineering.
9. B Narcotics
10. B Seed
11. D Dominant and independent
12. A Incomplete dominance

Solution of Bahawalpur Board (G-I) 2024**Objective Type**

1. A Capillaries
2. B 10-15 Years.
3. C Retina
4. C Trachea
5. C Androecium
7. D Genetics
6. A Yeast
8. D Guanine
9. B Leech
10. A Sun
11. B Vector
12. D Diazepam

Solution of Bahawalpur Board (G-II) 2024**Objective Type**

1. A More than 40
2. C Excesive intake of Vitamin D
3. A Cerebrum
4. B 4
5. D Budding
6. A Radical
7. D O
8. A Monohybrid Cross
9. A Fox
10. C Nitrification
11. B Endonuclease
12. C Sedatives

Solution of Sahiwal Board (G-I) 2024**Objective Type**

1. B Gynoecium
2. A Genotype
3. A N
4. A Fishes
5. A 3
6. D Digitalis
7. C Fermentation
8. B Renal pelvis
9. C Ear
10. D Pinna
11. C Loci
12. D Fungi

Solution of Sahiwal Board (G-II) 2024**Objective Type**

1. D 1927
2. C 1978
3. D Flesh and Plants
4. B Opium
5. C AB
6. C inheritance
7. D Hydra
8. B Sensory neuron
9. A Chondrocytes
10. C 9.3g/l
11. C Aquarium
12. C All the time

☆☆☆☆☆

Solution of Lahore Board (G-I)

Objective Type

1. B Emphysema 2. D Kidney transplant
3. C Testosterone 4. C Rheumatoid arthritis
5. A Bryophyllum 6. B Sunflower
7. D Homozygous 8. A Charles Darwin
9. B Ecosystem 10. D Carbon
11. C Pyruvic acid 12. B Cactus

Subjective Type (Section-I)

Q2. Write short answers to any FIVE (5) questions.

(i) Write symptoms of pneumonia.

Ans. The symptoms of pneumonia include a cold that is followed by a high fever, shivering, and a cough with sputum production. Patient may become short of breath. The patient's skin colour may change and become dusky or purplish. It is due to poor oxygenation of blood.

(ii) How smoking effects badly on human health? Write any two effects.

Ans. 1. Smoking can cause cancer of kidney, oral cavity, breast etc.
2. Smoking also effects the circulatory system. Carbon monoxide in tobacco smoke reduces hemoglobin's ability to carry oxygen.

(iii) How will you differentiate between acute bronchitis and chronic bronchitis?

Ans. **Acute Bronchitis:** Acute bronchitis usually lasts for about two weeks and the patient recovers without permanent damage to the bronchi or bronchioles,
Chronic Bronchitis: Chronic bronchitis involves chronic (long-lasting) inflammation of the bronchi. This bronchitis usually lasts from three months to two years.

(iv) Define cellular respiration.

Ans. Cellular respiration refers to the process in which oxidation-reduction reactions break C-H bonds in food and convert the released energy into ATP.

(v) What is lithotripsy?

Ans. In this method, non-electrical shock waves from outside are bombarded on the stones in the urinary system. Waves hit the dense stones and break them. Stones become sand-like and are passed through urine.

(vi) Write any two major causes of kidney failure.

Ans. Major causes of kidney failure include

1. Diabetes mellitus 2. Hypertension.

(vii) Write down functions of hypothalamus.

Ans. Hypothalamus lies above midbrain and just below thalamus. In humans, it is roughly the size of an almond.

Functions: 1. One of the most important functions of hypothalamus is to link nervous system and endocrine system.

2. It controls the secretions of pituitary gland.
3. It also controls feelings such as rage, pain, pleasure and sorrow.

(viii) Write name of three parts of inner ear of man.

- Ans.** 1. Semicircular canals
2. Vestibule 3. Cochlea

Q3. Write short answers to any FIVE (5) questions.

(i) Write name of ends of skeletal muscle.

Ans. The ends of skeletal muscles are:

1. Origin 2. Insertion

(ii) What are the characteristics of gout?

Ans. It is characterised by the accumulation of uric acid crystals in moveable joints. It generally attacks the toe joints.

(iii) Explain corms.

Ans. **Corms:** Corms are short and swollen underground stems containing stored food. Buds are present at the top of corm. From a bud, shoot grows and forms a new plant. Dasheen and garlic reproduce by corms.

(iv) Write disadvantages of vegetative propagation in plants.

Ans. Disadvantages of vegetative propagation are as follows:

1. The plants do not have genetic variations.
2. Species specific diseases can attack and this can result in the destruction of an entire crop.

(v) What is co-dominance? Give example.

Ans. Co-dominance is the situation where two different alleles of a gene pair express themselves completely, instead of showing a dominant-recessive relationship. As a result, the heterozygous organism shows a phenotype that is different from both homozygous parents.

Example: An example of co-dominance is the expression of human blood group AB.

(vi) What is meant by inheritance in biology?

Ans. Inheritance: inheritance refers to the transmission of characteristics from parents to offspring. These characteristics are called traits.

(vii) Define homologous chromosomes.

Ans. Homologous chromosomes: A pair of chromosomes having the same size and shape and carrying alleles for the same traits.

The body cells have a constant number of paired chromosomes. The two chromosomes of a pair are known as homologous chromosomes.

Example: In human body cells, there are 23 pairs of homologous chromosomes for a total of 46 chromosomes.

(viii) What is meant by nucleosomes?

Ans. DNA wraps around histone proteins and forms round structures, called nucleosomes. DNA is also present between nucleosomes. In this way, the nucleosomes and the DNA between them look like "beads on a string."

Q4. Write short answers to any FIVE (5) questions.

(i) Describe two methods of nitrogen fixation.

Ans. 1. Atmospheric: Thunderstorms and lightning convert atmospheric gaseous nitrogen to oxides of nitrogen. These oxides dissolve in water and form nitrous acid and nitric acid. The acids in turn combine with other salts to produce 'nitrates'. It is called as atmospheric nitrogen fixation.

2. Biological: Some bacteria also have the ability to transform gaseous nitrogen into nitrates. It is called biological nitrogen fixation. Some of these nitrogen fixing bacteria live as symbionts and many are free-living.

(ii) Compare mutualism and commensalism.

Ans. Mutualism: In this type of symbiotic interaction, both partners (of different species) get benefit and neither is harmed. For example, Termites eat wood but are not able to digest it. A protozoan lives in its intestine. It secretes 'cellulase' enzyme to digest the cellulose of wood. In return, the termite provides food and shelter to the protozoan.

Commensalism: It is a type of symbiosis in which one partner is benefited while the other is neither benefited nor harmed. For example epiphytes are small plants found growing on other larger plants for space only. They absorb water and minerals from atmosphere and prepare their own food. The larger plants are neither benefited nor harmed in any way.

(iii) Compare ecosystem and biosphere.

Ans. Ecosystem: The biotic and abiotic components of environment interact with each other to form a system. The self-sufficient unit of an environment that is formed as a result of interactions between its biotic community and the abiotic components is known as an ecosystem. A pond, a lake and a forest are examples of natural ecosystems.

Biosphere: The last level of ecological organization; all the ecosystems of the world together form the biosphere. The biosphere consists of all organisms present on the Earth and all regions of the Earth where they live. Biosphere ranges from the floor of oceans to the tops of the highest mountains. It is about 20 kilometres thick.

(iv) Write two 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.

(v) Write uses of glycerol.

Ans. Uses of Glycerol:

1. Use as solvent
2. Use in the production of plastics
3. Use in cosmetics and soaps
4. use in printing
5. use as sweetener

(vi) How gene of interest is isolated in genetic engineering?

Ans. Isolation of gene of interest: In the first step, the genetic engineer identifies the gene of interest in a donor organism. Special enzymes, called restriction endonucleases, are used to cut the identified gene from the total DNA of donor organism.

(vii) What are antibiotics? Also give example.

Ans. An antibiotic is a drug that kills or retards the growth (reproduction) of bacteria. They are the chemicals produced by or derived from microorganisms (bacteria and fungi). e.g. Tetracycline, Cephalosporin.

(viii) Define pharmacology and pharmacologist.

Ans. Pharmacology: Pharmacology is the study of drug composition, properties and medical applications. The sources of drugs are also studied in pharmacology.

Pharmacologist: Pharmacologists is scientist who study the effect of drugs and chemicals on living organism.

Solution of Lahore Board (G-II)

Objective Type

1. A Blood groups 2. B Snake 3. C 1977
4. C Epidermis 5. B Sheep 6. A 10 cm
7. B CO₂ 8. D 300 9. B Neuron
10. D Garlic 11. D Radical 12. A Two

Subjective Type (Section-I)

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

(i) How lungs are protected from free expanding and contracting movements?

Ans. Each lung is enclosed by two membranes called the outer pleural membrane and the inner pleural membrane. The membranes enclose a fluid which provides lubrication for the free expanding and contracting of the lungs.

(ii) What is asthma? Give its symptoms.

Ans. Asthma: Asthma is a form of allergy, in which there is inflammation of the bronchi, more mucous production and narrowing of the airways.

Symptoms: The major symptoms include shortness of breath (especially with exertion or at night), wheezing (whistling sound when breathing out), cough and chest tightness.

(iii) Write two bad effects of smoking.

Ans. 1. Smoking can cause cancer of kidney, oral cavity, breast etc.

2. Smoking also effects the circulatory system. Carbon monoxide in tobacco smoke reduces hemoglobin's ability to carry oxygen.

(iv) Differentiate acute bronchitis and chronic bronchitis.

Ans. Acute Bronchitis: Acute bronchitis usually lasts for about two weeks and the patient recovers without permanent damage to the bronchi or bronchioles.

Chronic Bronchitis: Chronic bronchitis involves chronic (long-lasting) inflammation of the bronchi. This bronchitis usually lasts from three months to two years.

(v) What are succulent organs? Give an example.

Ans. Some xerophytes have special parenchyma cells in stems or roots in which they store large quantities of water. This makes their stems or roots wet and juicy, called succulent organs. Cacti (Singular: Cactus) are the common examples of such plants.

(vi) How kidneys do pressure filtration?

Ans. When blood enters the kidney via the renal artery, it goes to many arterioles, and then to the glomerulus. The pressure of blood is very high and so most of the water, salts, glucose and urea of blood is forced out of glomerular capillaries. This material passes into the Bowman's capsule and is now called glomerular filtrate.

(vii) What is the reason of night blindness?

Ans. Body synthesizes rhodopsin from vitamin A and that is why the deficiency of vitamin A causes poor night vision. This problem is called night blindness.

(viii) Why adrenaline is termed as 'emergency hormone'?

Ans. Adrenal medulla secretes a hormone called epinephrine or adrenaline in response to stress. It prepares our body to overcome emergency situations. Therefore, adrenaline is also termed as 'emergency hormone'.

Q3. Write short answers to any FIVE (5) questions.

(i) What are tendons? Write their function.

Ans. Tendons and ligaments are bands of connective tissue (made of collagen). Tendons are tough bands and attach muscles to bones.

Function: When a muscle contracts tendon exerts a pulling force on the attached bone, which moves as a result.

(ii) Write two examples of hinge joints.

Ans. Two examples of hinge joints are:

1. knee joint
2. elbow joint

(iii) Define epigeal germination.

Ans. **Epigeal germination:** In epigeal germination, the hypocotyl elongates and forms a hook, pulling the cotyledons above ground. Beans, cotton and papaya are the examples of seeds that germinate this way.

(iv) Write function of Cowper's glands.

Ans. Cowper's glands produce secretions that lubricate the ducts.

(v) Describe phenotype ratio of F_2 generation derived by Mendel's Law of Segregation.

Ans. When members of F_1 generation were self-fertilized, Mendel got the ratio of tall to short plants in F_2 as 3:1.

$$P_2 = Rr \times Rr$$

$F_2 =$

	R	r
R	RR	Rr
r	Rr	rr

75 % Round : 25% Wrinkled

Ratio: 3 : 1

(vi) Why Mendel selected pea plants for his experiments?

Ans. **Selection of pea plant:** Mendel selected the pea plant (*Pisum sativum*) for his experiments based on the following characteristics.

- There should be a number of different traits that can be studied.
- The organism should have contrasting traits e.g. for the trait of height there should be only two very different phenotypes i.e. tallness and dwarfness.
- The organism (if it is a plant) should be self-fertilizing but cross fertilization should also be possible.
- The organism should have a short but fast life cycle.

(vii) Write two sources of variations.

Ans. Sources of variations are:

1. **Crossing over:** Crossing over produces new combinations of genes, which form gametes with mutations.
2. **Mutations:** Mutations i.e. changes in DNA are important sources of variation. Mutations occur during the formation of gametes from oocytes.

(viii) Define artificial selection.

Ans. Artificial selection (or selective breeding) means intentional breeding between individuals for certain traits, or combination of traits.

Q4. Write short answers to any FIVE (5) questions.

(i) If producers are eliminated from ecosystem, what will happen?

Ans. Producers are the foundation of an ecosystem. If an ecosystem runs out of producers. The entire ecosystem would collapse.

(ii) Define biosphere.

Ans. All ecosystems of the world together form the biosphere. It includes all the ecosystems of the planet Earth. In other words, the biosphere consists of all organisms present on the Earth and all regions of the Earth where they live. Biosphere ranges from the floor of oceans to the tops of the highest mountains. It is about 20 kilometres thick.

(iii) Briefly describe global warming.

Ans. **Global Warming:** The addition of greenhouse gases (e.g. carbon dioxide, methane, ozone) in atmosphere increases the temperature of the Earth. These gases remain in the lowest part of Earth's atmosphere and do not allow solar radiations to reflect back into space. As a result, heat remains within the Earth's atmosphere and increases its temperature. This is called global warming.

(iv) How biogeochemical cycles play their role in maintaining an ecosystem?

Ans. Biogeochemical cycles are the cyclic pathways through which materials move from environment to organisms and back to environment.

Since such movement of elements and inorganic compounds is essential for maintenance of life, they are also called "nutrient cycles".

(v) What is meant by fermentation?

Ans. **Fermentation:** Fermentation is the process in which there is incomplete oxidation-reduction of glucose.

(vi) Define glycolysis.

Ans. **Glycolysis:** Glucose molecules are broken down to form two pyruvic acid molecules. This process is called glycolysis. This process takes place in the cytoplasm.

(vii) What is the function of antibodies in blood?

Ans.Antibodies remain in the blood and provide protection against pathogens. If true pathogens enter the blood, pre-existing antibodies kill them.

(viii) Define sedatives and give one example.

Ans.Sedatives induce sedation by reducing irritability or excitement e.g. diazepam.

Solution of Gujranwala Board (G-I)

Objective Type

1. A CO₂ in blood
2. B Ureter
3. D Interneurons only
4. A Goat
5. B Ovary wall
6. A Binary fission
7. D Genetics
8. C DNA
9. C Decomposers
10. D Humans
11. A 1990
12. B A synthetic drug

Subjective Type (Section-I)

Q2. Write short answers to any FIVE (5) questions.

(i) What is cellular respiration? Define it.

Ans.Cellular respiration refers to the process in which oxidation-reduction reactions break C-H bonds in food and convert the released energy into ATP.

(ii) Write down the function of lenticels.

Ans.The lenticels allow air to pass through them.

(iii) Write down the names of two parts of respiratory system?

Ans.Respiratory system can be divided into two parts.

1. The Air Passageway
2. The Lungs

(iv) Compare the breathing rate in normal conditions and during exercise.

Ans.breathing rate in normal conditions 16-20 per minute while it is increase 30-40 times per minute during exercise.

(v) How normal pH of blood is maintained?

Ans.During tubular secretion ions, creatinine, urea etc. are secreted from blood into the filtrate in renal tubule. This is done to maintain blood at a normal pH (7.35 to 7.45).

(vi) Define osmoregulation.

Ans.Osmoregulation: The maintenance of the amount of water and salts in body fluids (i.e. blood and tissue fluids) is called osmoregulation.

(vii) Write down names of this components of coordinated action.

Ans.A coordinated action has five components; Stimuli, Receptors, Coordinators, Effectors, Response.

(viii) What is the function of meninges?

Ans.Meninges protect brain and also provide nutrients and oxygen to brain tissue through their capillaries.

Q3. Write short answers to any FIVE (5) questions.

(i) Write down names of the cells which make bone and cartilage.

Ans.The mature bone cells are called osteocytes. While cells of cartilage are called chondrocytes.

(ii) What is meant by Rheumatoid Arthritis?

Ans.Rheumatoid Arthritis: It involves the inflammation of the membranes at joints. Its symptoms include fatigue, low-grade fever, pain and stiffness in joints.

(iii) What is double fertilization?

Ans.The pollen tube contains a tube nucleus and two sperms. The tube grows through style and ovary and enters ovule. Here, it bursts and releases the sperms. Both sperms enter the female gametophyte. One sperm fuses with egg and forms a diploid zygote. The other sperm fuses with diploid fusion nucleus and forms a triploid (3N) nucleus called endosperm nucleus. Since the process of fertilization involves two fusions, it is called double fertilization.

(iv) Differentiate between Epigeal and Hypogeal Germination.

Ans.Epigeal germination: In epigeal germination, the hypocotyl elongates and forms a hook, pulling the cotyledons above ground. Beans, cotton and papaya are the examples of seeds that germinate this way.

Hypogeal Germination: In hypogeal germination, the epicotyl elongates and forms the hook. In this type of germination, the cotyledons stay underground. Pea, maize and coconut germinate this way.

(v) Describe the law of Independent Assortment.

Ans.Law of Independent Assortment: According to this law "the alleles of a gene pair segregate (get separated and distributed to gametes) independently from the alleles of other gene pairs".

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OBJECTIVE TYPE
Multiple Choice Questions

1. After fertilization within the flower, the future of the ovule is:
A Zygote b Seed
C Ovary D Fruit
2. Actually, an immature plant is:
a Embryo B Radicle
C Ovule D Endosperm
3. The name of gaseous exchange in humans lungs is:
A pharynx B trachea
C bronchi d alveoli
4. In which succulent organs are found?
A halophytes
B hydrophytes
C mesophytes
d xerophytes
5. The number of pair of spinal nerves are:
a 31 B 27 C 29 D 33
6. The length of human kidney is:
a 10 cm B 5 cm
C 4 cm D 27 cm
7. Which part of the brain is responsible for muscle movements, interpretation of sensations and memory?
A Pons b Cerebrum
C Cerebellum
D Medulla oblongata
8. A disease in which uric acid accumulates in the joints:
a Gout
B Rheumatoid arthritis
C Osteoporosis
D Osteoarthritis
9. An organism has genotype AAbb. How many genetically different gametes can that organism produce?
a 1 B 2 C 4 D 8
10. The plants which are bred are called ____:
A Breeders b Cultivars
C Corny vers D Herbie vers
11. What is the rate of breathing in humans at rest?
a 16 to 20 times
B 70 to 80 times
C 80 to 100 times
D 10 to 20 times
12. The human urinary system consists of:
A On a pair of kidneys
B On a pair of ureters
C Urinary bladder
d All of these
13. Capillaries of glomerulus do not filter:
a Blood cells and proteins
B Fats and proteins
C Fats and salts
D Salts and proteins
14. The length of spinal cord is:
A 30cm B 45cm
C 40cm D 50cm
15. The middle layer of human eye is called:
A Retina B Sclera
C Optic disc d Choroid
16. According to UNAID, 0.1% of the adult population of Pakistan has the disease:
A Hepatitis b AIDS
C Polio D T-B
17. James Watson and Francis Crick presented a model of the structure of DNA.
A 1953 B 1943
C 1933 D 1923
18. Decomposers are:
a Fungi and bacteria
B Bacteria
C Viruses D Fungi
19. Length of trachea is:
A 16 B 14 c 12 D 10
20. What happens during exhalation?
A Ribs muscles relax
B The shape of the diaphragm becomes dome-shaped
C The pressure above the lungs increases
d All of these
21. The procedure for removing kidney stones is:
A Transplant b Lithotripsy
C Dialysis
D None of these
22. What is a co-ordinator in nervous co-ordination?
A Glands
b Brain and spinal cord
C Brain
D Spinal Cord
23. Which vitamin deficiency cause poor night vision?
a Vitamin A B Vitamin B
C Vitamin C D Vitamin D
24. The hard outer layer of bone is called:
a Compact bone
B Spongy bone
C Bone pulp
D None of these
25. The enzyme used to dissolve blood clot is?
A Lipase B Interferons
C Urokinase
D Beta-endorphin

81. The secretions released from the Keekar are called:
a Gums B Mucilage
C Latices D Resins
82. Which plant has succulent organs?
a Cactus B Lily
C Sea grass D Hydralla
83. Which organ is responsible for filtering the blood?
A Intestine B Brain
C Stomach d Kidney
84. It is responsible for chemical coordination:
a Endocrine system
B Central nervous system
C Peripheral nervous system
D Autonomic nervous system
85. Normally the duration of nervous coordination is:
A Quick B Brief
C Quick but short
D None of these
86. The hindbrain is not a part of:
A Medulla oblongata
B Pans
C Cerebrum d Cerebrum
87. Which part of the human eye contains blood vessels?
A Retina b Choroid
C Iris D Pupil
88. Myopia ____ is also called:
A Far sightedness
B Color blindness
C Short sightedness
D Night blindness
89. What is another name for epinephrine?
A Parathormone
b Adrenaline
C Thai Rockson
D Kelsey Tonen
90. Which of the following is a plant parasite?
A Wedge plant B Sundew
C Venus fly trap d Cuscuta
91. Inhibits or kills bacteria in or on the body.
A Analgesics b Antibiotics
C Antibodies
D Antinarcotics
92. Which disease is treated by vaccine?
a Smallpox B AIDS
C Hepatitis D Malaria
93. The respiratory center is present?
A In the lungs
b In the brain
C In the nose
D In the muscles
94. The chest wall is based on how many pairs of ribs?
a 12 B 10 C 8 D 14
95. What disease does Streptococcus pneumonia cause?
A Emphysema B Asthma
C Bronchitis
d Pneumonia
96. Glottis is an opening on the floor of what:
A nasal cavity B nostrils
C pharynx D antibiotics
97. The membrane around the lungs is called:
A alveoli B diaphragm
C pleural D bronchi
98. stomata are found in:
a Epidermis
B Endodermis
C Xylem D Phloem
99. Respiratory centre is present in:
A lungs b brain
C nose D muscles
100. Resins as an excretory material eliminated from:
A coniferous B tomato
C keekar D rubber
2. What is a reflex action? Give an example.
3. Define symbiosis. Write a difference between mutualism and commensalism.
4. What is meant by insertion of muscles?
5. Define antigens and antibodies.
- 6 Write the names of the types of joint.
- 7 Write the difference between epigeal and hypogeal.
8. Write the definition of genotype and phenotype.
9. What is meant by self-pollination?
- 10 What is meant by Vaccination?
11. What is the difference between population and community?
12. What is co-dominance? Give an example.
13. Write two symptoms of asthma. And also write the treatment.
14. Write the definition of hydrophytes.
- 15 Write the achievement of Sir Alexander Fleming.
- 16 Name two types of fermentation.
- 17 Write two characteristics of Xerophytes plants.
18. What is meant by halophytes?
19. What is meant by kidney stones?
- 20 What is compact bone or spongy bone?
21. What is cloning?
22. Define transcription and translation.
23. What is the difference between nitrification and denitrification?
24. Define antagonism.
25. Write the difference between dominant allele and recessive allele.
- 26 What are tendons? What do they do?

Short Questions

1. How do ball and socket joints move?

- | | | |
|--|---|---|
| 27. Explain continuous and discontinuous variations. | endoskeleton and exoskeleton? | rejection? |
| 28. Define osteoporosis. | 53. What is gout? | 78. What is glomerular filtrate? |
| 29. What is meant by receptors? Give examples. | 54. What is the difference between internal and external fertilization? | 79. What is the difference between pharmaceutical drug and narcotic drug? |
| 30. What is Guttation? How is it different from Dew? | .55 Write the names of drugs obtained from plants and fungi. | 80. Explain the difference between sexual and asexual reproduction? |
| 31. What is meant by voice box? | .56 What are cephalosporin? | 81. Define the multiple fission. |
| 32. Write the structure of larynx. | .57 Explain the difference between bactericidal and bacteriostatic antibiotics. | 82. Write the difference between spore and endospore. |
| 33. What are the two stages of respiration? | 58. Write the disadvantages of vegetative propagation. | 83. What is meant by natural selection? |
| .34 What is the function of urinary bladder? | 59. Describe the structure of the inner ear. | 84. Write two disadvantages of acid rain. |
| 35. What is meant by decomposer? Give two examples. | 60. What is meant by bone? Give an example. | .85 What is meant by hallucinations or hallucinogens? |
| 36. Name the types of coordination. | 61. Write two differences between stomata and lenticels. | 86. What are sulpha drugs? Write one use of it. |
| 37. Write the symptoms of paralysis. | 62. Define homeostasis with examples. | 87. How does skin regulate body temperature? |
| 38. Write the function of occipital lobe. | 63. What is meant by coordinators? | .88 Define oval window. |
| 39. Define cartilage and give an example. | 64. What is meant by saltatory impulses? | 89. What is the difference between Spermatogenesis and Oogenesis? |
| 40. Define Alveoli. | 65. What is the difference between sensory and motor neurons? | 90. List the nitrogenous bases present in the double helix of DNA. |
| 41. What is meant by pressure filtration? | .66 What are endocrine glands? | 91. Explain the difference between biotic and abiotic components. |
| 42. Compare stimulus and response. | 67. Explain positive feedback with examples. | 92. What is meant by predation? Explain with an example. |
| 43. Where is the midbrain located? What is its importance? | .68 Define flexion and extension. | 93. What is meant by overpopulation? |
| 44. What is meant by hyaline cartilage? | .69 What is meant by homozygous genotype and heterozygous genotype? | 94. What is meant by continuous fermentation? |
| 45. What is meant by broad spectrum and narrow spectrum antibiotics? | 70. What is meant by pharmacology? | .95 What are endonucleases and ligases? |
| 46. Define food web and food chain. | 71. What is skin? Name the layers of skin. | 96. Write the difference between disinfectants and antiseptics. |
| 47. What are pleural membrane? Write its importance. | 72. What is Rheumatoid Arthritis? | 97. Explain the concept of genotype with an example. |
| 48. Write the names of the four parts of the urinary system. | 73. What is a micropile? | 98. Write the definition of blubs and corms. |
| 49. Write the importance of respiratory system and trachea. | 74. What is Meninges? Write their names. | 99. Define locomotion and movement. |
| 50. Describe the structure of the lungs. | 75. What is meant by parasitism? | 100. What is the function of parathormone? |
| 51. What is a kidney transplant? | 76. What are synthetic drugs? | ☆.....☆.....☆ |
| .52 What is meant by | 77. What is meant by tissue | |



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CLASS TEST

Class Test # 5	Biology -10	Syllabus: Chapter 15	Objective Type	Time: 10 Min.	Marks: 8
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Q.1: Choose the correct option.

1- The unit of inneritance is called:

- A Chromosome B DNA C Gene D RNA

2- The units of inheritance on chromosomes are called:

- A Genes B Alleles C Phenotype D Genotype

3- Gene are made of:

- A RNA B mRNA C Protein D DNA

4- The number of hydrogen bonds between adenine and thymine is ____.

- A 1 B 2 C 3 D 4

5- Which plant did Mendel choose?

- A Pea B Rose C Cabbage D Mustard

6- An organism's expressed physical trait, such as seed colour or pod shape is called its:

- A Genotype B Phenotype C Karyotype D Physical type

7- Gene I have alleles.

- A IA,IB and IA B IB,IA and Io C IA,IB and Io D Io,IA and IB

8- The dominance relationship between alleles IA and IB of blood groups is:

- A Co-dominance B Incomplete dominance
C Complete dominance D Intermediate dominance

PTO ✂-----✂

Class Test # 6	Biology -10	Syllabus: Chapter 16	Objective Type	Time: 10 Min.	Marks: 8
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Q.1: Choose the correct option.

1- Which of the following is a biotic component of an ecosystem?

- A Producers B Herbivores C Carnivores D Air

2- When we eat goat meat, our trophic level is ____.

- A Primary consumer B Thymosin
C Primary carnivores D Secondary carnivores

3- Goat eats grass, what is its trophic level?

- A Primary consumer B Secondary consumer
C Decomposer D Producer

4- A web of interconnected food chains at different trophic levels is called ____.

- A Biomass B Pyramid of numbers C Pyramid of biomass D Food web

5- Which form of nitrogen is taken by the producers of ecosystem?

- A Nitrogen gas B Ammonia C Nitrites D Nitrates

6- In this symbiotic interaction, both partners get benefits and neither is harmed:

- A Parasitism B Mutualism C Commensalism D Both B and C

7- An imbalance of the carbon cycle results in:

- A Pollution B Global warming C Acid rain D Ozone depletion

8- How much the amount of nitrous oxide in the atmosphere has been increased?

- A 6% B 7% C 8% D 10%

Q.2: Write short answers to the following questions.

10 × 2 = 20

- (i) What is transcription?
- (ii) How does the DNA of chromosomes work?
- (iii) What is phenotype? Give an example.
- (iv) Why did Mendel choose the pea plant for his experiments?
- (v) Give reasons why Mendel's experiments were carried out on pea plants.
- (vi) What is the test cross? And why is it necessary?
- (vii) Write the Genotype of Blood Group B.
- (viii) What is the difference between continuous and discontinuous variations?
- (ix) Explain the difference between artificial and natural selection.
- (x) What is meant by Artificial selection?

Q.3: Answer the following questions.

1 × 10 = 10

- (i) What is meant by variation? Explain its two main types, causes and sources.

✂-----✂

Q.2: Write short answers to the following questions.

10 × 2 = 20

- (i) What is meant by the environment of an organism?
- (ii) Write the names of abiotic and biotic components of an ecosystem.
- (iii) What is meant by producers? What happens if an ecosystem runs out of producers?
- (iv) Define the food chain and foodweb.
- (v) How many types of ecological pyramids are there?
- (vi) Give reasons why carbon cycles are perfect.
- (vii) Write the names of two carnivorous plants.
- (viii) Write examples of human impacts on ecosystem balance.
- (ix) What is meant by acid rain?
- (x) What do you mean by afforestation.

Q.3: Answer the following questions.

1 × 10 = 10

- (i) Write a note on commensalism.

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**ASSESSMENT TEST
CHAPTER WISE**

Q1. Choose the correct option.**1. Multiple fission occurs:**

- A Amoeba B Yeast C Hydra D Rhizopus

2. How does reproduction take place in yeast?

- A Budding B Spores C Fragmentation D Parthenogenesis

3. Asexual reproduction occurs in Rhizopus by:

- A Binary fission B Budding C Spores D Endospores

4. The development of a new organism from an egg cell without fertilization is called:

- A Parthenogenesis B Budding C Physigmentation D Binary fission

5. Dasheen and Garlic plants reproduce by:

- A Bulbs B Corms C Rhizomes D Stem tubers

6. A plant reproduces by stem tuber is:

- A Onion B Potato C Garlic D Ginger

7. Asexual reproduction takes place through the suckers in:

- A Mint B Lily C Ginger D Potato

8. Seedless fruiting plants, including angiosperms, are produced by?

- A Grafting B Grafting C suckers D Tubers

9. The endosperm nucleus is :

- A Haploid B Diploid C Triploid D None of these

10. The female reproductive part of a flower is:

- A Calyx B Corolla C gynoecium D Androecium

11. An example of a flower pollinated by insects is:

- A Maize B Rose C Beed D Bunga

12. Spermatocytes are produced:

- A From spermatids B From spermatogonia
C from haploid daughter cells D from diploid daughter cells

Al-Razi Assessment Papers	16	Biology - 10		
Assessment Chapterwise Test 4	Syllabus: Unit 14	Subjective Type	Time: 1:45 Min.	Marks: 48

(Section - I)

Q2. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- Differentiate between sexual and asexual reproduction.
- What is meant by fragmentation?
- Describe the process of reproduction in hydra and corals.
- Why are bacterial spores called endospores?
- How does a honeybee reproduce?
- Define vegetative propagation. Also write the names of its two methods.
- What is the difference between corms and bulbs?
- Define stem tubers and give two examples.

Q3. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- What is vegetative propagation by leaves?
- Write advantages of vegetative propagation of plants.
- Write down the difference between cloning and tissue culture.
- What is meant by alternation of generation?
- What is gynoeceium?
- Write the names of the reproductive parts of a flower.
- Write the names of the parts of a flower.
- How seeds and fruits are made of?

Q4. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- What is Seed coat? Explain its function.
- What is a micropile? What is its uses for seeds?
- What is Germination? Explain its types.
- What structural similarities would you see in a flower pollinated by wind?
- What is spermatogenesis?
- What is external fertilization?
- Write the name of the virus that causes AIDS.
- Write two main objectives of the National AIDS Control Programme.

(Section - II)

Note: Attempt TWO questions in all. (9 × 2 = 18)

- Define binary fission. Describe it in amoeba with labelled diagram. 4
 - Explain the structure of flower by drawing its diagram. 5
- Explain how seeds are produced in flowering plants? 4
 - What is fertilization? Explain its both types. 5
- Describe the process of seed germination in detail. 4
 - Describe the process of Spermatogenesis and Oogenesis. 5

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**ASSESSMENT TEST
1ST HALF**

Q1. Choose the correct option.

1. The process of taking in oxygen from the atmosphere and expelling carbon dioxide from the body is called:
A Cellular respiration B Excretion C Gaseous exchange D Secretion
2. The space inside the nose is called:
A Bronchi B Nasal cavity C Air drum D Pharynx
3. Halophytes live in:
A Sea B River C Pond D Canal
4. What is the correct route taken by urine after exiting the kidney?
A Urethra, bladder, ureters B Bladder, ureters, urethra
C Ureters, bladder, urethra D Bladder, urethra, ureters
5. Myelin sheath is formed by the cells _____ that wraps around some neurons.
A Nodes of rainvier B Axons C Dendrites D Schwann cells
6. It is not part of the hindbrain:
A Pons B Medulla oblongata C Cerebrum D Cerebrum
7. The cartilage found in the intervertebral disc is:
A Hyaline B Fibrous C Matrix D Elastic
8. Hyoid bone is found in:
A Skull B Neck C Breast D Ear
9. What is a bone disease?
A Osteoporosis B Gout C Arthritis D All of these
10. Asexual reproduction takes place in amoeba by:
A Budding B Binary fission C Fragmentation D Multiple fission
11. A bee is a queen:
A Haploid B Triploid C Diploid D Polyploid
12. The method used for propagation of peach and plums tree:
A Cutting B Grafting C Bulbs D Corms

(Section - I)

Q2. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- (i) Justify that how photosynthesis and respiration takes place side by side during the day?
- (ii) What are alveolar ducts and alveoli?
- (iii) What is meant by osmoregulation?
- (iv) Describe two characteristics of hydrophytes.
- (v) Define coordination and write its types.
- (vi) Describe the function of dendrites and axons.
- (vii) Give functions of bones.
- (viii) What is meant by multiple fission?

Q3. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- (i) What are Vocal Cords? Write their function.
- (ii) Describe the pathway of air from the nasal cavity to the alveoli.
- (iii) What are the important organs involved in homeostasis in the human body? Describe the role of each organ.
- (iv) Write the names of the three main steps of urine formation.
- (v) What is meant by Hippocampus?
- (vi) Write the functions of Medulla Oblongata.
- (vii) Write the names of chest bones.
- (viii) How does budding occur in corals?

Q4. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- (i) What is a Diaphragm?
- (ii) What are the causes of pneumonia?
- (iii) What is pressure filtration?
- (iv) What is lithotripsy?
- (v) What is autonomic nervous system?
- (vi) What is the role of rhodopsin in eye?
- (vii) What is meant by origin?
- (viii) Describe the process of parthenogenesis in honey bee.

(Section - II)

Note: Attempt TWO questions in all. (9 × 2 = 18)

- Q5. (a) How Kidneys form urine in our body? 4**
(b) What is cartilage? Describe its types. 5
- Q6. (a) Describe the name and function of different lobes of cerebrum. 4**
(b) Write a note on Binary Fission in Bacteria. Also draw diagram. 5
- Q7. (a) Write down causes, symptoms and treatment of kidney stones. 4**
(b) Define Arthritis and describe its three types. 5

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ASSESSMENT TEST
2ND HALF

Assessment Test 10 (2nd Half)	Syllabus: Unit 15 to 18	Objective Type	Time: 15 Min.	Marks: 12
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Q1. Choose the correct option.

1. The name of Protein present in Chromatin Material is:

- A Insulin B Hemoglobin C Histone D Fibrin

2. At the time of fertilization, an equal number of _____ from each parents or combined.

- A Genes B Chromosomes C Alleles D DNA

3. What causes the structural and functional changes in populations:

- A Mutation B Variation C Recombination D Flow of genes

4. Where is the first trophic level placed?

- A Carnivores B Producers C Herbivores D Consumers

5. Conversion of nitrogen gas into nitrates is called:

- A Nitrogen fixation B Assimilation C Denitrification D Ammonification

6. How much waste water is discharged daily from the industry into nearby reservoirs?

- A 6000 cubic meters B 9000 cubic meters
C 12000 cubic meters D 15000 cubic meters

7. When did humans start using micro-organisms?

- A 400BC B 40BC C 4000BC D 4BC

8. In glycolysis, one molecule of glucose is broken down to form two molecules?

- A Formic acid B Lactic acid C Pyruvic acid D Acetic acid

9. Interferons protein are used as:

- A Anti bacteria B Anti viruses C Anti fungi D Anti drugs

10. Which of these is obtained from medicinal plants?

- A Aspirin B Opium C Cephalosporin D Insulin

11. He first proposed the idea of sterile surgery:

- A Joseph Trott B Joseph Fisher C Joseph Lister D Joseph Aspden

12. Thiazide diuretics are used to reduce?

- A High fever B Glucose level C Blood pressure D All of these

Al-Razi Assessment Papers		28	Biology - 10	
Assessment Test 10 (2nd Half)	Syllabus: Unit 15 to 18	Subjective Type	Time: 1:45 Min.	Marks: 48

(Section - I)

Q2. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- Write characteristics of Watson - crick model of DNA.
- Comment on why a dominant allele suppresses the expression of a recessive allele?
- Define Ecology.
- What are carnivores? Give the examples.
- Define biotechnology. When human insulin was prepared with the help of bacteria?
- What is glycolysis?
- Differentiate between pharmaceutical drug and addictive drugs.
- What is iodine tincture? Write down its uses.

Q3. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- Write the genotype of blood group "A".
- Argue that mutations cause variation.
- What is meant by trophic level?
- What is green house effect?
- Write two advantages of fermented food.
- Write down uses of glycerol.
- Write two uses of narcotics.
- What are Cephalosporins?

Q4. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- Write down definition of continuous variations and give two examples.
- Analyze how artificial selection can produce functional plants with better yield?
- Define assimilation.
- What is meant by mutualism? Write an example.
- Define recombinant DNA.
- Write two important achievements of genetic engineering.
- What are cephalosporins and tetracyclines?
- Define vaccines. Who introduced this process?

(Section - II)

Note: Attempt TWO questions in all. (9 × 2 = 18)

- Write important sources of medicinal drugs. 4
 - What is meant by single cell protein? Describe its importance. 5
- Write four achievements of genetic engineering. 4
 - What is biotechnology? Write its role in betterment of our environment. 5
- What do you mean by co-dominance. Give an example. 4
 - What are the different stages of Nitrogen cycle 5

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**ASSESSMENT TEST
FULL BOOK**

Q1. Choose the correct option.

1. Stomata are found:

- A Xylem B Phloem C Epidermis D Endodermis

2. It's like an allergy:

- A Bronchitis B Asthma C Emphysema D Pneumonia

3. In which group of plants succulent are organs found?

- A Hydrophytes B Mesophytes C Xerophytes D Halophytes

4. The organ responsible for filtering blood is:

- A Intestine B Stomach C Rectum D Kidney

5. The part of the neuron that conducts the nerve impulse to the cell body is called:

- A Dendrites B Axons C Ganglia D Myelin sheath

6. Separates the middle ear from the inner ear:

- A stapes B eardrum C tympanum D oval window

7. The number of bones in the lower jaw in mammals is:

- A One bone B Two bones C Three bones D Four bones

8. The units of gynoecium are called:

- A Sepals B Petals C Carpels D Stamens

9. An organism has two different alleles for a trait. What would such a genotype be called?

- A Homozygous B Heterozygous C Homologous D Hemizygous

10. The numbers of trophic levels in a food chain are usually:

- A 2-3 B 3-4 C 4-5 D 5-6

11. The microorganism used in ethanol production is:

- A Aspergillus B Viruses C Bacillus D Saccharomyces

12. This drug effects on the sympathetic nervous system causing dilation of pupils:

- A Narcotics B Hallucinogens C Marijuana D Sedatives

Al-Razi Assessment Papers	30	Biology - 10
Assessment Full Book Test 11	Syllabus: Unit 10 - 18	Subjective Type
Time: 1:45 Min.	Marks: 48	

(Section - I)

Q2. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- (i) How do gases exchange in leaves and young stems?
- (ii) What is meant by waste material of metabolism?
- (iii) What is meant by Stimulus?
- (iv) Write the number of bones in the human skeleton.
- (v) Differentiate between regeneration and binary fission.
- (vi) What is Central Dogma?
- (vii) Define secondary consumers with an example.
- (viii) Write a short note on lactic acid fermentation.

Q3. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- (i) What are the functions of mucus and hair inside the nose?
- (ii) What role do the lungs play in homeostasis?
- (iii) What are Schwann cells? Where these are found?
- (iv) Write the number of bones in pectoral girdle and pelvic girdle.
- (v) How does yeast reproduce asexually?
- (vi) What is meant by genotype? Write the names of its types.
- (vii) Define biomass.
- (viii) Differentiate between analgesics and sedatives.

Q4. Write short answers to any FIVE (5) questions. (5 × 2 = 10)

- (i) Write the symptoms of bronchitis.
- (ii) Explain the role of "Bowman's capsule" in nephron.
- (iii) State the functions of pons.
- (iv) Suggest arguments for what would happen if the neck joint were a ball and socket joint.
- (v) How does reproduction by bulbs take place in plants? Give any two examples.
- (vi) What is Punnett square?
- (vii) Define parasitism.
- (viii) Which is the most commonly abused drug?

(Section - II)

Note: Attempt TWO questions in all. (9 × 2 = 18)

- Q5. (a) Write a note on Cartilage and its types. 4
- (b) Write down the sources of drugs? Give examples. 5
- Q6. (a) Describe the methods of cleaning of blood by artificial ways. 4
- (b) Describe the structure and function of bone with its labelled diagram. 5
- Q7. (a) How does adrenaline play its role in exercise and emergency situations? 4
- (b) Explain five different methods of natural vegetative propagation with examples. 5



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ANSWERS KEY

ANSWERS – ASSESSMENT TESTS**Assessment Chapterwise Test 1**

- | | | |
|------------------|--------------------------|--------------------------|
| 1. D Stomata | 2. C Cartilage | 3. A Pulmonary vein |
| 4. D Diaphragm | 5. B Nitrogen | 6. C Platelets |
| 7. A Homeostasis | 8. A Transpiration | 9. B Sea grass |
| 10. C Heart | 11. C In urinary bladder | 12. B More than 10 lakhs |

Note: Answers of subjective questions are given in Learning Material.

Assessment Chapterwise Test 2

- | | | |
|-------------------|-------------------------|-------------------------------|
| 1. B Brain | 2. C Muscles and glands | 3. D Schwann cells |
| 4. C Both A and B | 5. C Hypothalamus | 6. C Cerebrum |
| 7. A Medulla | 8. C White matter | 9. C Autonomic nervous system |
| 10. B Sclera | 11. A Ear | 12. C Thyroid |

Note: Answers of subjective questions are given in Learning Material.

Assessment Chapterwise Test 3

- | | | |
|-------------------------|------------------|-------------------------------|
| 1. C Pinna | 2. C lacunae | 3. D Blood cells |
| 4. D Blood cells | 5. B Spongy bone | 6. D 26 |
| 7. C 8 | 8. B 3 | 9. A Skull joint |
| 10. A Connective tissue | 11. B Insertion | 12. B Due to greater friction |

Note: Answers of subjective questions are given in Learning Material.

Assessment Chapterwise Test 4

- | | | |
|----------------------|---------------|--------------------------|
| 1. A Amoeba | 2. A Budding | 3. C Spores |
| 4. A Parthenogenesis | 5. B Corms | 6. B Potato |
| 7. A Mint | 8. B Grafting | 9. C Triploid |
| 10. C gynoecium | 11. B Rose | 12. B From spermatogonia |

Note: Answers of subjective questions are given in Learning Material.

Assessment Chapterwise Test 5

- | | | |
|---------------------------|------------------|-------------------------|
| 1. A In genetics | 2. A 46 | 3. B 23 |
| 4. B Gene | 5. C Nucleosomes | 6. C Homozygous |
| 7. C <i>Pisum sativum</i> | 8. A 1 | 9. B IBIB |
| 10. D 1 : 2 : 1 | 11. A Mutations | 12. B Natural selection |

Note: Answers of subjective questions are given in Learning Material.

Assessment Chapterwise Test 6

- | | | |
|-------------------|----------------|----------------------------|
| 1. B 20 K.M | 2. C Plant | 3. A Water |
| 4. A Grasshopper | 5. A 1 | 6. B Sparrow |
| 7. B Carbon cycle | 8. B Predation | 9. A Scarecrows |
| 10. B 30% | 11. C Winter | 12. D Repeated consumption |

Note: Answers of subjective questions are given in Learning Material.

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