

Chapter 5

Tissues, Organs, and Organ Systems

What's inside this booklet:

- 72+ fully solved Multiple Choice Questions
- Correct answers clearly ticked & highlighted in green
- Short, clear explanation given below every question
- Covers Levels of Organization, Leaf as an Organ & Stomach as an Organ
- Perfect for quick revision and test preparation

72 Solved MCQs Inside

Reference & more free resources: scholareye.xyz

5.1 — Levels of Organization

Q1

What is the smallest unit of matter that maintains the property of an element?

A. Molecule

✓ B. Atom

C. Cell

D. Organelle

Correct Answer: **B. Atom**

Explanation: Atoms are the smallest unit of matter that maintain the property of an element, e.g. carbon, hydrogen, oxygen.

Q2

Which of the following is an example of an atom?

A. Water

B. Protein

✓ C. Carbon

D. Nucleic acid

Correct Answer: **C. Carbon**

Explanation: Carbon is an atom. Water, protein and nucleic acid are all molecules formed by atoms combining together.

Q3

Atoms combine chemically to form which level of organization?

A. Organelle

✓ B. Molecule

C. Cell

D. Tissue

Correct Answer: **B. Molecule**

Explanation: When atoms combine they form molecules, which have entirely different properties than the atoms they contain.

Q4

Which of these is an example of a molecule mentioned in the chapter?

A. Carbon

B. Oxygen

✓ C. Water

D. Hydrogen

Correct Answer: **C. Water**

Explanation: Water is a molecule formed by the combination of atoms (hydrogen and oxygen), unlike carbon, oxygen and hydrogen which are atoms.

Q5

Molecules combine in specific ways to make a specialized subcellular level called:

A. Tissue

B. Organ

✓ C. **Organelle**

D. Cell

Correct Answer: **C. Organelle**

Explanation: Molecules combine to form organelles — subcellular structures, each specialized to perform a particular function.

Q6

Which organelle is responsible for cellular respiration?

A. Ribosome

✓ B. **Mitochondria**

C. Nucleus

D. Chloroplast

Correct Answer: **B. Mitochondria**

Explanation: Mitochondria are responsible for cellular respiration, generating energy for the cell.

Q7

Which organelle is specialized for protein synthesis?

A. Mitochondria

✓ B. Ribosome

C. Golgi body

D. Lysosome

Correct Answer: **B. Ribosome**

Explanation: Ribosomes are specialized for protein synthesis within the cell.

Q8

What is the smallest unit of life that can carry out life activities and reproduce?

A. Molecule

B. Organelle

✓ C. Cell

D. Tissue

Correct Answer: **C. Cell**

Explanation: The cell is the smallest unit with the characteristics of life — it can carry out life activities and reproduce.

Q9

Organisms made up of only one cell are called:

A. Multicellular

✓ B. Unicellular

C. Acellular

D. Bicellular

Correct Answer: **B. Unicellular**

Explanation: Unicellular organisms are made of only one cell, while multicellular organisms are made of many cells.

Q10

A group of similar cells that work together to perform one or more specific functions is a:

A. Organ

B. Organ system

✓ C. Tissue

D. Organelle

Correct Answer: **C. Tissue**

Explanation: A tissue is a group of similar cells that work together to perform one or more specific functions.

Q11

A structure made up of related tissues working together to perform specific functions is a(n):

A. Organism

✓ B. Organ

C. Tissue

D. Organ system

Correct Answer: B. Organ

Explanation: An organ is a structure made up of related tissues working together, e.g. the heart or a leaf.

Q12

Which level of organization consists of multiple organs working together for related functions?

A. Tissue

B. Cell

✓ C. Organ system

D. Organelle

Correct Answer: C. Organ system

Explanation: An organ system consists of multiple organs working together to perform related functions, e.g. the digestive system.

Q13

A living entity that can function independently is called a(n):

A. Organ

B. Tissue

✓ C. **Organism**

D. Cell

Correct Answer: **C. Organism**

Explanation: An organism is a living entity that can function independently, supported by the proper functioning of its organ systems, e.g. humans and trees.

Q14

Which is the correct increasing order of complexity for the given levels?

A. Cell → Atom → Molecule

✓ B. **Atom → Molecule → Cell**

C. Molecule → Cell → Atom

D. Cell → Molecule → Atom

Correct Answer: **B. Atom → Molecule → Cell**

Explanation: Organization proceeds from simple to complex: Atom → Molecule → Organelle → Cell, and so on.

Q15

What is the correct complete order of levels of organization from simplest to most complex?

✓ **A. Atom, Molecule, Organelle, Cell, Tissue, Organ, Organ system, Organism**

B. Atom, Cell, Molecule, Tissue, Organelle, Organ, Organism, Organ system

C. Molecule, Atom, Cell, Organelle, Tissue, Organ system, Organ, Organism

D. Cell, Atom, Molecule, Organelle, Organ, Tissue, Organ system, Organism

Correct Answer: A. Atom, Molecule, Organelle, Cell, Tissue, Organ, Organ system, Organism

Explanation: The correct order shown in Figure 5.1 is: Atom → Molecule → Organelle → Cell → Tissue → Organ → Organ system → Organism/Individual.

Tissues, Organs & Organ Systems in Animals and Plants

Q16

Which tissue covers body surfaces and lines cavities in animals?

A. Muscle tissue

✓ **B. Epithelial tissue**

C. Vascular tissue

D. Epidermal tissue

Correct Answer: B. Epithelial tissue

Explanation: Epithelial tissue covers body surfaces and lines cavities in animals, e.g. skin.

Q17

The skin is an example of which animal tissue mentioned in the chapter?

A. Muscle tissue

✓ **B. Epithelial tissue**

C. Vascular tissue

D. Mesophyll tissue

Correct Answer: B. Epithelial tissue

Explanation: The chapter gives skin as an example of epithelial tissue, which covers body surfaces and lines cavities.

Q18

Which tissue enables movement in animals, such as cardiac muscle in the heart?

A. Epithelial tissue

B. Vascular tissue

✓ **C. Muscle tissue**

D. Epidermal tissue

Correct Answer: C. Muscle tissue

Explanation: Muscle tissue enables movement in animals; cardiac muscle in the heart is one example given in the text.

Q19

In plants, which tissue protects the underlying parts, e.g. the epidermis of a leaf?

A. Vascular tissue

✓ B. Epidermal tissue

C. Mesophyll tissue

D. Muscle tissue

Correct Answer: B. Epidermal tissue

Explanation: Epidermal tissue in plants protects the underlying parts, such as the epidermis of a leaf.

Q20

Which plant tissue transports water and nutrients, such as xylem and phloem?

A. Epidermal tissue

B. Mesophyll tissue

✓ C. Vascular tissue

D. Guard tissue

Correct Answer: C. Vascular tissue

Explanation: Vascular tissue transports water and nutrients in plants; it includes xylem and phloem.

Q21

Which of the following best defines a tissue?

A. A single specialized cell

✓ **B. A group of similar cells performing specific functions**

C. Related organs working together

D. A combination of molecules

Correct Answer: B. A group of similar cells performing specific functions

Explanation: A tissue is defined as a group of similar cells that work together to perform one or more specific functions.

Q22

Which animal organ pumps blood through the circulatory system?

A. Lungs

✓ **B. Heart**

C. Stomach

D. Kidney

Correct Answer: B. Heart

Explanation: The heart is the organ that pumps blood through the circulatory system.

Q23

Which animal organ facilitates gas exchange?

A. Heart

B. Stomach

✓ C. Lungs

D. Liver

Correct Answer: **C. Lungs**

Explanation: The lungs are the organ responsible for facilitating gas exchange in animals.

Q24

In plants, which organ conducts photosynthesis?

A. Roots

B. Stem

✓ C. Leaves

D. Flower

Correct Answer: **C. Leaves**

Explanation: Leaves are the plant organ that conducts photosynthesis.

Q25

Which plant organ absorbs water and nutrients from the soil?

A. Leaves

✓ B. Roots

C. Stem

D. Flower

Correct Answer: **B. Roots**

Explanation: Roots are the plant organ that absorbs water and nutrients from the soil.

Q26

Which organ system transports nutrients and oxygen throughout the body?

A. Digestive system

✓ B. Circulatory system

C. Respiratory system

D. Nervous system

Correct Answer: **B. Circulatory system**

Explanation: The circulatory system transports nutrients and oxygen throughout the body.

Q27

Which organ system breaks down food and absorbs nutrients?

A. Circulatory system

✓ **B. Digestive system**

C. Respiratory system

D. Excretory system

Correct Answer: B. Digestive system

Explanation: The digestive system breaks down food and absorbs nutrients.

Q28

Which plant system anchors the plant and absorbs water and nutrients?

A. Shoot system

✓ **B. Root system**

C. Vascular system

D. Reproductive system

Correct Answer: B. Root system

Explanation: The root system anchors the plant in soil and absorbs water and nutrients.

Q29

Which plant system supports the plant and conducts photosynthesis?

A. Root system

✓ **B. Shoot system**

C. Vascular system

D. Digestive system

Correct Answer: B. Shoot system

Explanation: The shoot system supports the plant and conducts photosynthesis (it bears the leaves).

Q30

Which of the following is an example of a complete organism?

A. Leaf

B. Heart

✓ **C. Human**

D. Tissue

Correct Answer: C. Human

Explanation: A human is a complete organism — a living entity that functions independently, unlike a leaf (organ) or heart (organ).

Q31

Trees and humans are examples of which level of biological organization?

A. Organ system

✓ **B. Organism**

C. Organ

D. Tissue

Correct Answer: B. Organism

Explanation: Trees and humans are given in the text as examples of organisms.

Q32

An organ system is best described as:

A. A single organ

✓ **B. Multiple organs working together for related functions**

C. A single tissue

D. Multiple cells only

Correct Answer: B. Multiple organs working together for related functions

Explanation: An organ system consists of multiple organs that work together to perform related functions.

Q33

Which organ system in animals transports nutrients and oxygen while another breaks down food — this pairing is found at which level of organization?

A. Tissue level

B. Organelle level

☒ C. Organ system level

D. Molecule level

Correct Answer: C. Organ system level

Explanation: The circulatory system and digestive system are both organ systems, representing the organ-system level of organization.

Q34

Which of the following pairs correctly matches a plant organ with its function?

A. Roots – photosynthesis

☒ B. Leaves – photosynthesis

C. Stem – absorbing water

D. Flower – gas exchange

Correct Answer: B. Leaves – photosynthesis

Explanation: Leaves are correctly matched with photosynthesis; roots absorb water and nutrients, not perform photosynthesis.

Q35

Which of the following pairs correctly matches an animal organ with its function?

A. Heart - gas exchange

B. Lungs - pumping blood

✓ **C. Heart - pumping blood**

D. Stomach - gas exchange

Correct Answer: C. Heart - pumping blood

Explanation: The heart correctly pumps blood through the circulatory system, while the lungs (not the heart) facilitate gas exchange.

5.2 — Leaf as an Organ

Q36

What is the outermost layer of a leaf called?

A. Mesophyll tissue

✓ **B. Epidermal tissue**

C. Vascular tissue

D. Palisade layer

Correct Answer: B. Epidermal tissue

Explanation: The outermost layer of the leaf is made of epidermal tissue (epidermis).

Q37

What covers the upper epidermis of a leaf to reduce water loss and provide protection?

A. Stomata

B. Guard cells

✓ C. Waxy cuticle

D. Xylem

Correct Answer: C. Waxy cuticle

Explanation: The upper epidermis is usually covered by a waxy cuticle, which reduces water loss and provides protection.

Q38

The tiny pores found between two guard cells in the lower epidermis are called:

A. Cuticle

✓ B. Stomata

C. Vascular bundles

D. Mesophyll

Correct Answer: B. Stomata

Explanation: The tiny pores between two guard cells are called stomata (singular: stoma).

Q39

What is the plural form of the word 'stoma'?

A. Stomatas

✓ **B. Stomata**

C. Stomae

D. Stomas

Correct Answer: **B. Stomata**

Explanation: The plural of 'stoma' is 'stomata', as stated in the chapter.

Q40

What is the main function of stomata in a leaf?

A. Photosynthesis only

✓ **B. Control gas exchange and loss of water vapour**

C. Water storage

D. Structural support

Correct Answer: **B. Control gas exchange and loss of water vapour**

Explanation: Stomata control gas exchange and the loss of water vapours from the leaf.

Q41

Which tissue is present between the upper and lower epidermis of a leaf?

A. Vascular tissue

✓ **B. Mesophyll tissue**

C. Epidermal tissue

D. Guard tissue

Correct Answer: B. Mesophyll tissue

Explanation: Mesophyll tissue is present between the upper and lower epidermis of the leaf.

Q42

Mesophyll cells are rich in which organelle, making them the main site of photosynthesis?

A. Mitochondria

B. Ribosomes

✓ **C. Chloroplasts**

D. Nucleus

Correct Answer: C. Chloroplasts

Explanation: Mesophyll cells are rich in chloroplasts, which is why mesophyll tissue is the site of photosynthesis.

Q43

How many types of mesophyll tissue are found in a leaf?

A. One

✓ B. Two

C. Three

D. Four

Correct Answer: **B. Two**

Explanation: There are two types of mesophyll in the leaf: palisade mesophyll and spongy mesophyll.

Q44

Which mesophyll layer is located just beneath the upper epidermis?

A. Spongy mesophyll

✓ B. Palisade mesophyll

C. Vascular mesophyll

D. Guard mesophyll

Correct Answer: **B. Palisade mesophyll**

Explanation: Palisade mesophyll is located just beneath the upper epidermis.

Q45

Palisade mesophyll consists of:

A. Loosely arranged cells with air spaces

✓ **B. Tightly packed elongated cells**

C. Guard cells only

D. Xylem vessels

Correct Answer: **B. Tightly packed elongated cells**

Explanation: Palisade mesophyll consists of tightly packed elongated cells.

Q46

Which mesophyll layer is present below the palisade mesophyll?

✓ **A. Spongy mesophyll**

B. Palisade mesophyll

C. Epidermal mesophyll

D. Vascular mesophyll

Correct Answer: **A. Spongy mesophyll**

Explanation: Spongy mesophyll is present below the palisade mesophyll.

Q47

Spongy mesophyll is composed of:

A. Tightly packed elongated cells

✓ **B. Loosely arranged cells with air spaces between them**

C. Guard cells only

D. Waxy cuticle

Correct Answer: B. Loosely arranged cells with air spaces between them

Explanation: Spongy mesophyll is composed of loosely arranged cells with air spaces between them.

Q48

What is the function of the air spaces found in spongy mesophyll?

A. Water storage

✓ **B. Facilitate the diffusion of gases throughout the leaf**

C. Store sugars

D. Protect from herbivores

Correct Answer: B. Facilitate the diffusion of gases throughout the leaf

Explanation: The air spaces in spongy mesophyll facilitate the diffusion of gases throughout the leaf.

Q49

Where is the vascular tissue of a leaf located?

A. Upper epidermis only

✓ B. Midrib and veins of the leaf

C. Lower epidermis only

D. In the cuticle

Correct Answer: **B. Midrib and veins of the leaf**

Explanation: The vascular tissue of the leaf is located in the midrib and veins of the leaf.

Q50

Why is the vascular tissue of a leaf called a complex tissue?

A. It has only one cell type

✓ B. It consists of two tissues — xylem and phloem

C. It has no specific function

D. It is found only in roots

Correct Answer: **B. It consists of two tissues — xylem and phloem**

Explanation: Vascular tissue is called complex because it consists of two tissues: xylem tissue and phloem tissue.

Q51

Which tissue conducts water and minerals from the stem to the leaf cells?

A. Phloem

✓ **B. Xylem**

C. Mesophyll

D. Epidermis

Correct Answer: B. Xylem

Explanation: Xylem tissue conducts water and minerals from the xylem of the stem to the leaf cells.

Q52

Which tissue transports the products of photosynthesis (sugars) from leaf cells to the phloem of the stem?

A. Xylem

✓ **B. Phloem**

C. Mesophyll

D. Cuticle

Correct Answer: B. Phloem

Explanation: Phloem tissue transports the products of photosynthesis, i.e. sugars, from leaf cells to the phloem of the stem.

Q53

In which part of the leaf's epidermis are guard cells found?

A. Palisade mesophyll

✓ **B. Lower epidermis**

C. Midrib only

D. Vascular bundle

Correct Answer: B. Lower epidermis

Explanation: The lower epidermis contains guard cells, between which the stomata are found.

Q54

Which figure in the chapter illustrates 'Tissues which make the leaf organ'?

A. Figure 5.1

✓ **B. Figure 5.2**

C. Figure 5.3

D. Figure 5.4

Correct Answer: B. Figure 5.2

Explanation: Figure 5.2 in the chapter is titled 'Tissues which make the leaf organ'.

Q55

Which figure in the chapter illustrates the 'Levels of Organization'?

✓ A. Figure 5.1

B. Figure 5.2

C. Figure 5.3

D. Figure 5.4

Correct Answer: **A. Figure 5.1**

Explanation: Figure 5.1 in the chapter is titled 'Levels of organization', showing atom through individual.

5.3 — Stomach as an Organ

Q56

What is the primary function of the stomach in the digestive system?

A. Absorb water

✓ B. Partial digestion of proteins and storing food

C. Digest carbohydrates only

D. Store bile

Correct Answer: **B. Partial digestion of proteins and storing food**

Explanation: The stomach is responsible for the partial digestion of proteins and also stores food.

Q57

Which tissue makes up the inner wall of the stomach?

A. Muscle tissue

✓ B. Epithelial tissue

C. Connective tissue

D. Outer connective tissue

Correct Answer: **B. Epithelial tissue**

Explanation: The inner wall of the stomach is made up of glandular epithelial tissue.

Q58

What does the epithelial tissue of the stomach secrete to protect it from acid?

A. Pepsin

✓ B. Mucus

C. Bile

D. Saliva

Correct Answer: **B. Mucus**

Explanation: The epithelial tissue secretes mucus, which lines the inner wall and protects it from acid.

Q59

Which inactive enzyme is secreted in the stomach for protein digestion?

A. Pepsin

✓ B. Pepsinogen

C. Trypsin

D. Amylase

Correct Answer: B. Pepsinogen

Explanation: The gastric juice contains the enzyme pepsinogen, which is involved in protein digestion.

Q60

Which acid activates pepsinogen into pepsin in the stomach?

A. Sulfuric acid

✓ B. Hydrochloric acid

C. Acetic acid

D. Citric acid

Correct Answer: B. Hydrochloric acid

Explanation: Hydrochloric acid, present in gastric juice, activates pepsinogen to pepsin enzyme.

Q61

Which tissue lies beneath the epithelial tissue in the stomach and provides structural support?

A. Muscle tissue

✓ **B. Connective tissue**

C. Outer connective tissue

D. Vascular tissue

Correct Answer: B. Connective tissue

Explanation: Connective tissue lies beneath epithelial tissue and provides structural support in the stomach.

Q62

The connective tissue of the stomach contains:

A. Only muscle fibres

✓ **B. Blood vessels, nerves, and lymphatics**

C. Only mucus glands

D. Chloroplasts

Correct Answer: B. Blood vessels, nerves, and lymphatics

Explanation: Connective tissue in the stomach contains blood vessels, nerves, and lymphatics.

Q63

How many layers of smooth muscle are found in the stomach?

A. Two

✓ B. Three

C. Four

D. One

Correct Answer: **B. Three**

Explanation: There are three layers of smooth muscle in the stomach wall.

Q64

What are the three layers of smooth muscle in the stomach, from outer to inner?

✓ A. Longitudinal, circular, oblique

B. Palisade, spongy, epidermal

C. Xylem, phloem, cambium

D. Epithelial, connective, vascular

Correct Answer: **A. Longitudinal, circular, oblique**

Explanation: The three muscle layers of the stomach are: outer longitudinal, middle circular, and inner oblique.

Q65

What is the function of the stomach's muscle tissue contracting and relaxing?

A. To produce mucus

✓ **B. To mix food with the gastric juice**

C. To absorb nutrients

D. To produce bile

Correct Answer: B. To mix food with the gastric juice

Explanation: The muscle layers contract and relax to mix food with the gastric juice.

Q66

Which is the outermost layer of the stomach that encircles and supports it?

A. Epithelial tissue

B. Connective tissue

C. Muscle tissue

✓ **D. Outer connective tissue**

Correct Answer: D. Outer connective tissue

Explanation: The outer connective tissue is the outermost layer that encircles and supports the stomach.

Q67

Which figure in the chapter shows 'Tissues which make the stomach organ'?

A. Figure 5.1

B. Figure 5.2

☒ C. **Figure 5.3**

D. Figure 5.4

Correct Answer: C. Figure 5.3

Explanation: Figure 5.3, 'Tissues which make the stomach organ', illustrates the four tissue layers of the stomach.

Q68

Which of the following tissue types is common to both the leaf and the stomach as organs, forming their outer protective covering?

A. Vascular / muscle tissue

☒ B. **Epidermal tissue in leaf and epithelial tissue in stomach**

C. Mesophyll tissue in both

D. Connective tissue in leaf and xylem in stomach

Correct Answer: B. Epidermal tissue in leaf and epithelial tissue in stomach

Explanation: Both organs have an outer protective tissue: epidermal tissue in the leaf and epithelial tissue in the stomach.

Q69

Which of these is NOT a tissue found in the stomach, according to the chapter?

A. Epithelial tissue

B. Muscle tissue

✓ **C. Mesophyll tissue**

D. Connective tissue

Correct Answer: C. Mesophyll tissue

Explanation: Mesophyll tissue is found in leaves, not in the stomach; the stomach is made of epithelial, connective, muscle, and outer connective tissue.

Q70

The stomach is an organ belonging to which organ system?

A. Circulatory system

✓ **B. Digestive system**

C. Respiratory system

D. Excretory system

Correct Answer: B. Digestive system

Explanation: The stomach is an important organ of the digestive system.

Q71

How many distinct tissue layers of the stomach are described in the chapter?

A. Two

B. Three

✓ C. Four

D. Five

Correct Answer: **C. Four**

Explanation: The chapter describes four tissue layers of the stomach: epithelial, connective, muscle, and outer connective tissue.

Q72

What is the correct order of stomach tissue layers from innermost to outermost?

✓ A. Epithelial → Connective → Muscle → Outer connective

B. Muscle → Epithelial → Connective → Outer connective

C. Outer connective → Muscle → Connective → Epithelial

D. Connective → Epithelial → Outer connective → Muscle

Correct Answer: **A. Epithelial → Connective → Muscle → Outer connective**

Explanation: From innermost to outermost: epithelial tissue, connective tissue, muscle tissue, and outer connective tissue.