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Basic Physiology & Tissue Types

Exam — Tissues

High-school/pre-med-level questions on basic physiology concepts, homeostasis, and the four main tissue types.

28 items — Printable Exam

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Generated February 20, 2026

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1 **Physiology is best defined as the study of:**

A The names of body parts

B How body structures work and carry out life functions

C The microscopic appearance of tissues

D How diseases change normal tissues

E The evolutionary history of living things

2 **Which sequence correctly lists levels of organisation in the human body from SIMPLEST to MOST COMPLEX?**

A Cell → tissue → organ → organism → organ system

B Tissue → cell → organ → organ system → organism

C Cell → tissue → organ → organ system → organism

D Organ → tissue → cell → organ system → organism

E Organism → organ system → organ → tissue → cell

3 **Homeostasis refers to:**

A Keeping all body conditions completely constant at all times

B The body's ability to maintain a relatively stable internal environment within narrow limits

C The production of heat in muscles during exercise

D The change of body temperature with the external environment

E The body's ability to prevent any change at all

4 **Which of the following is an example of a variable that is normally kept under homeostatic control in humans?**

A Eye colour

B Blood glucose concentration

C Length of the bones

D Genetic sequence of DNA

E Number of ribs

5 **In a typical negative feedback loop maintaining homeostasis, which sequence is correct?**

A Stimulus → effector → control centre → receptor

B Receptor → control centre → effector → response

C Control centre → receptor → stimulus → effector

D Effector → response → receptor → control centre

E Response → stimulus → effector → receptor

6 **Which situation is the BEST example of negative feedback in human physiology?**

A During childbirth, stretching of the cervix causes more oxytocin release, which increases contractions

B Blood glucose rises after a meal, insulin is released, and blood glucose falls back toward normal

C Blood clotting where activated platelets activate more platelets

D The surge of LH that triggers ovulation

E The rapid, self-amplifying depolarisation during an action potential

7 **Which situation is the BEST example of positive feedback in the body?**

A Regulation of body temperature around 37 °C

B Maintenance of blood pressure during standing

C Increasing uterine contractions during childbirth due to oxytocin release

D Control of blood pH around 7.4

E Regulation of resting heart rate

8 **The 'internal environment' in classic physiology refers mainly to:**

A The air inside the lungs

B The extracellular fluid (including plasma and interstitial fluid) that bathes the cells

C The contents of the digestive tract

D The inside of red blood cells

E The cytoplasm of each cell

9 **Which statement about tissues is CORRECT?**

A A tissue is a group of different organs working together

B A tissue is a group of similar cells and their products performing a specific function

C A tissue is the same as an organ system

D A tissue contains only one type of molecule

E Tissues exist only in plants, not animals

10 **Which list correctly names the FOUR basic types of tissues in the human body?**

A Muscle, cartilage, blood, bone

B Epithelial, connective, muscle, nervous

C Epithelial, bone, cartilage, blood

D Connective, skeletal, cardiac, smooth

E Loose, dense, adipose, cartilage

11 **Which main tissue type forms the lining of the digestive tract and the skin surface?**

A Connective tissue

B Epithelial tissue

C Muscle tissue

D Nervous tissue

E Adipose tissue

12 **Which statement about epithelial tissue is TRUE?**

A It has abundant blood vessels running between the cells

B Its cells are widely separated by large amounts of extracellular matrix

C It consists of tightly packed cells with little extracellular matrix and is usually avascular

D It cannot regenerate once damaged

E It is found only inside bones

13 **Simple squamous epithelium is especially well suited for:**

A Protection against abrasion (e.g. skin)

B Rapid diffusion and filtration (e.g. air sacs of lungs)

C Stretching and recoil (e.g. bladder)

D Producing strong contractions

E Storing fat

14 **Which epithelial type is MOST appropriate for protecting areas subject to friction, such as the outer layer of the skin (epidermis)?**

A Simple squamous epithelium

B Simple cuboidal epithelium

C Stratified squamous epithelium

D Simple columnar epithelium

E Transitional epithelium

15 **Which main tissue type is characterised by an abundance of extracellular matrix and relatively fewer, widely spaced cells?**

A Epithelial tissue

B Connective tissue

C Muscle tissue

D Nervous tissue

E Glandular tissue only

16 **Which of the following is classified as a CONNECTIVE tissue?**

A Smooth muscle

B Stratified squamous epithelium

C Blood

D Nervous tissue in the brain

E Cardiac muscle

17 **Adipose tissue (body fat) is best classified as:**

A Epithelial tissue specialised for absorption

B Muscle tissue specialised for contraction

C A type of connective tissue specialised for energy storage, insulation and cushioning

D Nervous tissue specialised for conduction

E A type of cartilage

18 **Which main tissue type is primarily responsible for producing body movements and generating heat?**

A Epithelial tissue

B Connective tissue

C Muscle tissue

D Nervous tissue

E Adipose tissue

19 **Which statement correctly matches the THREE types of muscle tissue with a feature of each?**

A Skeletal: involuntary; cardiac: voluntary; smooth: striated

B Skeletal: striated and voluntary; cardiac: striated and involuntary; smooth: non-striated and involuntary

C Skeletal: non-striated; cardiac: non-striated; smooth: striated

D Skeletal and cardiac: involuntary; smooth: voluntary

E All muscle types are voluntary

20 **Cardiac muscle tissue is found:**

A In the walls of the stomach and intestines only

B Attached to bones throughout the body

C Only in the wall of the heart

D In the walls of all blood vessels

E In all glands that secrete hormones

21 **Which main tissue type is specialised for rapid communication and control using electrical impulses?**

A Epithelial tissue

B Connective tissue

C Muscle tissue

D Nervous tissue

E Adipose tissue

22 **The main functional cells of nervous tissue that generate and conduct nerve impulses are called:**

A Erythrocytes

B Neurons

C Chondrocytes

D Osteocytes

E Adipocytes

23 **Which organ is correctly matched with the MAIN tissue that carries out its primary function?**

A Heart – epithelial tissue

B Brain – smooth muscle tissue

C Bone – nervous tissue

D Skeletal muscle – muscle tissue

E Skin – nervous tissue

24 **Which epithelial tissue type lines most of the digestive tract (stomach and intestines), where absorption and secretion are important?**

- A Simple squamous epithelium
- B Simple columnar epithelium
- C Stratified squamous epithelium
- D Transitional epithelium
- E Pseudostratified ciliated epithelium

25 **Which main tissue type forms ligaments and tendons that connect bones to other bones and muscles to bones?**

- A Epithelial tissue
- B Dense connective tissue
- C Smooth muscle tissue
- D Nervous tissue
- E Cartilage epithelium

26 **Cartilage is a type of connective tissue that is:**

- A Highly vascular and heals very quickly
- B Avascular with chondrocytes embedded in a firm but flexible matrix
- C Composed only of muscle cells
- D The same as bone tissue

E Made only of elastic fibres and no cells

27 **Which statement correctly links each tissue type with one MAIN role?**

A Epithelial – movement; muscle – absorption; nervous – support

B Connective – communication; nervous – storage; epithelial – contraction

C Epithelial – covering/lining; connective – support; muscle – movement; nervous – control

D Epithelial – support; connective – contraction; muscle – covering

E All four tissues – exactly the same main role

28 **Which of the following is NOT a correct example of a tissue–location pair?**

A Smooth muscle – wall of the intestine

B Skeletal muscle – biceps brachii

C Nervous tissue – spinal cord

D Simple squamous epithelium – alveoli of the lungs

E Stratified squamous epithelium – inside of long bones

Answer Key

#	Ans	Answer Text
	B	
2	C	Cell → tissue → organ → organ system → organism
	B	
4	B	Blood glucose concentration
	B	
6	B	Blood glucose rises after a meal, insulin is released, and blood glucose...
	C	
8	B	The extracellular fluid (including plasma and interstitial fluid) that b...
	B	
10	B	Epithelial, connective, muscle, nervous
	B	
12	C	It consists of tightly packed cells with little extracellular matrix and...
	B	
14	C	Stratified squamous epithelium
	B	
16	C	Blood
	C	
18	C	Muscle tissue
	B	
20	C	Only in the wall of the heart
	D	
22	B	Neurons
	D	
24	B	Simple columnar epithelium
	B	
26	B	Avascular with chondrocytes embedded in a firm but flexible matrix
	C	
28	E	Stratified squamous epithelium – inside of long bones